

**Texas Commission on Environmental Quality
FY2005-2010 Non-point Source Pollution 319(h) Grant
U.S. EPA Contract No. C9-996146-11; TCEQ No. 905026**

**FINAL REPORT
Clean Texas GreenScapes:
Using BMPs to Reduce Nonpoint Source Pollution from Urban Landscapes**

Introduction

The Small Business Environmental Assistance (SBEA) Division's Pollution Prevention and Education Section is pleased to provide this Final Report for the Clean Texas GreenScapes Project, which is part of the FY2005-2010 Clean Water Act Non-point Source Pollution 319(h) grant. This grant implemented a regional program to demonstrate the effectiveness of compost and mulch as landscape best management practices (BMPs) to reduce nonpoint source pollution, conserve water, and compliment ongoing total maximum daily load (TMDL) implementation.

The project focused on building partnerships among the cities in the Lower Rio Grande Valley to promote the use of compost and mulch in public areas. Eight compost demonstration sites were selected in five areas – City of Weslaco, City of McAllen, Hidalgo County, City of Donna, and City of Brownsville. To accomplish the work, a contract with the City of Weslaco was initiated on June 1, 2006. Unfortunately, many of the deliverables were not completed on time. Despite efforts to get the project on schedule, the tasks continued to fall behind. Therefore, the contract with the City of Weslaco was terminated on November 5, 2008. As a result, not all of the tasks were completed. The final status of the project's tasks and deliverables are summarized in the '*Final Task and Deliverable Table*' below.

Data on Financial Expenditures

The following table outlines the financial expenditures for the project. The remaining funds and match requirements are being reallocated to another project under this grant

Category	FY2005 Beginning Balance	FY2007 to FY2008 Amount Paid and Matched	Remaining Balance
Federal Funds - Contracts	\$126,600	\$58,875	\$67,725
Federal Funds - Rent*	\$3,600	\$0	\$3,600
State Match (In-Kind)**	\$86,800	\$39,250	\$47,550
Total	\$217,000	\$98,125	\$118,875

*This money was returned to the non-point source pollution 319 grant.

**Since total amount spent for this project is \$58,875, the total match for this project is \$39,250. The Clean Texas GreenScapes project generated \$25,125 in match from workshop attendees and compost donations. The additional \$14,125 was generated from another project [name of grant from 319] funded through this grant.

Final Task and Deliverable Table

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
Objective 1: Project Administration			
1.1 Select Contractor - Select a contractor located in the Lower Rio Grande Valley to manage the project.	The City of Weslaco was selected as the contractor for this project. A contract with the City was executed on June 1, 2006.	June 2006	June 2006
1.2 Subcontractor Oversight – TCEQ SBEA will oversee the sub-contractor to ensure that the tasks specified in the scope of work are completed.	TCEQ SBEA staff worked with the City throughout the life of the project. In March 2008, the City subcontracted with Raba-Kistner to assist with completing the tasks and deliverables. On March 13 and 14, 2008, SBEA staff conducted site visits to verify the contractor’s and subcontractor’s work.	Ongoing	November 2009
1.3 Assemble Stakeholder Group - Assemble a stakeholder team or utilize an existing group to provide project guidance; establish meeting schedule and project milestones. Team members and participants will be encouraged to join as a Clean Texas-GreenScapes member. The list of stakeholder and contact information, meeting schedules, and milestones will be provided with the semi-annual progress report.	<p>Interlocal agreements were approved on January 25, 2007 and made between the City of Weslaco and Hidalgo County, McAllen, Donna, and Brownsville. Below is a list of representatives.</p> <p>City of Weslaco – Pete Garcia Parks Department Director</p> <p>Hidalgo County – Charlie Contreras Special Projects Manager</p> <p>City of McAllen - Ouina Rutledge Recycling Manager</p> <p>City of Donna - David De Los Rios Parks and Recreation Director</p> <p>City of Brownsville - Skip Keller</p>	June 2006	<p>January 2007</p> <p>March 2008</p>

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
	<p>Parks and Recreation Director</p> <p>To assist with the project, the Weslaco City Commission accepted a proposal on March 6, 2008 from Raba Kistner (RK) Consultants to conduct support services for the composting project. On, March 19, 2008, Raba Kistner conducted a meeting with all stakeholders to discuss the project and plan objectives. Reviewed all project sites with the city representatives on March 27, 2008.</p> <p>Contact for Raba Kistner Eduardo Choquis, P.E. Tomas Cruz, Jr.</p>		
<p>1.4 Progress Reports - Submitted semi-annually by the 15th of February and August which include status of deliverables for each objective and narrative description in Progress Report format.</p>	<p>Quarterly rather than semi-annual reports were submitted. Ten quarterly reports were received for the periods ending 8-31-06, 11-30-06, 2-28-07, 5-31-07, 8-31-07, 11-30-07, 2-29-08, 5-31-08, 8-31-08, and 10-31-08.</p>	<p>Semi-annually</p>	<p>October 2008</p>
<p>1.5 Reimbursement Forms - Provided on the prescribed forms (269a; 269a 1-4; Small and/or Minority Owned Business Report) (where applicable, document why Good Faith Effort did not result in the utilization of a small and/or minority-owned business) and due on the last day of the month following the end of each quarter.</p>	<p>Received ten reimbursement forms for the periods ending 8-31-06, 11-30-06, 2-28-07, 5-31-07, 8-31-07, 11-30-07, 2-29-08, 5-31-08, 8-31-08, and 10-31-08.</p>	<p>Quarterly</p>	<p>October 2008</p>
<p>1.6 Contractor Evaluation - An annual self-evaluation will be completed using the prescribed form.</p>	<p>The contractor did not submit self-evaluations each year. However, TCEQ SBEA staff worked with the contractor throughout life of project providing feedback along the way. In January 2009, a final contract evaluation on the</p>	<p>Annually</p>	<p>January 2009</p>

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
	City of Weslaco's performance was prepared by TCEQ staff.		
Objective 2: Select demonstration site locations and determine historical pollutant loads.			
<p>2.1 Demonstration Sites - Identify a minimum of eight (8) properties that meet site criteria within partner cities.</p>	<p>In March 2007, eight sites were selected to participate as demonstration sites. Interlocal agreements with the participating cities were executed. The sites are listed below:</p> <p>City of Weslaco -Harlon Block Sports Complex, 1020 west 18th Street Two locations: Cricket Field and West Baseball Field</p> <p>City of McAllen -Jackson City School Park, East Soccer Field -Hike and Bike Trail, 2nd and Jonquil</p> <p>Hidalgo County/City of San Juan -Hidalgo County Precinct No. 2 North San Juan Park Baseball Field</p> <p>City of Donna -Donna City Park Southwest Grounds</p> <p>City of Brownsville -Walking Trail Located along FM 802 -Oliveira Park Strip Between Soccer Fields, 104 El Paso, 78520</p>	June 2006	March 2007

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
<p>2.2 Management Cooperation – Seek site management cooperation and commitment to project</p>	<p>In January 2007, Interlocal cooperation agreements between the City of Weslaco and each city listed in 2.1 were signed. The agreements outlined the project roles and responsibilities for all parties.</p>	<p>June 2006</p>	<p>Formalized January 2007 – ongoing throughout life of project</p>
<p>2.3 Collect Information. Collect historical information on application rates to determine baseline on soil properties, fertilizer and pesticide use, irrigation and cultural practices to determine the potential for pollutant runoff, water use and initial cost information for illustrative comparisons at each demonstration site.</p>	<p>Initial baseline data was collected on March 20, 2007 and April 12, 2007.</p>	<p>June 2006</p>	<p>March to April 2007</p>
<p>2.4 Calculate Load Reductions. Use methods described in scientific studies or modeling to calculate potential pollutant loads based upon baseline data and historical practices.</p>	<p>Methods for calculating load reductions were determined by Raba Kistner. However, the potential pollutant loads were not calculated.</p>	<p>June 2006</p>	<p>Not completed</p>
<p>Objective 3: Install landscape best management practices.</p>			
<p>3.1 Review Irrigation Systems - Secure qualified contractors for irrigation review and installation of automatic irrigation soil-moisture sensors and rainfall sensors; test and confirm proper operation.</p>	<p>A request for proposal for irrigation services was submitted to three vendors on February 5, 2008. TCMS Commercial Landscaping was secured and scheduled to install sensors in June 2008. However, due to severe weather, this task was not completed.</p>	<p>July 2007</p>	<p>Not completed</p>

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
3.2 Compost Contractor - Secure qualified contractor(s) for compost application.	In February 2007, secured City of McAllen as compost supplier for projects in 2007 and 2008.	June 2006	February 2007 March 2008
3.3 Demonstration Project – Install demonstration project.	<p>The first installation of the demonstration sites took place in March to April 2007, compost materials were delivered to all eight sites (as listed in 2.1) and spread by park staff.</p> <p>The second installation occurred in May and September 2008. In May 2008, compost was delivered to and applied to all project sites with the exception of the two City of McAllen sites. McAllen compost installation was cancelled due to constant heavy rain fall and Hurricane Dolly during June, July, and August. On September 9, 2008, compost was delivered and applied to the McAllen Hike and Bike walking Trail. The compost was applied through a demonstration of a compost blower. Representatives from other cities, commercial landscapers, and citizens attended the demonstration.</p> <p>See Attachment A for pictures of the demonstration sites in 2007 and 2008.</p>	February 2007 and August 2008	March-April 2007 May 2008 September 2008
Objective 4: Evaluation of BMP implementation			
4.1 BMP Effectiveness - Following BMP installation, site will be observed to determine the BMP's effectiveness in improving soil quality and potentially reducing runoff.	No observations were made after the first installation of the demonstration sites in 2007. Observations made after the second installation for the period ending May 31, 2008, August 31, 2008, and October 2008 indicated that the compost material was observed to be effective in reducing irrigation runoff, increasing irrigation absorption, and promoting ground vegetation growth. City site representatives reported no application/necessity of nutrient and pesticide materials to compost application	August 2006 to August 2008	May 2008 August 2008 October 2008

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
	<p>sites during this quarter. No soil erosion, nutrient deficiencies, and/or pest or disease infestation were observed during this time frame.</p> <p>The Brownsville Hike and Bike Walking Trail was the exception in that a healthy turf was not evident during the site visit.</p> <p>Consistent rain fall during the months of August and September 2008 contributed greatly to the entire area's ground vegetation growth.</p>		
<p>4.2 Activity Logs - Collect and compile participants' operational activity logs from demonstration sites.</p>	<p>Activity logs for three reporting periods were received – for period ending May 31, 2008, August 31, 2008, and October 31, 2008. Overall the logs indicated that the compost was being effective in reducing irrigation runoff, increasing irrigation absorption, and promoting ground vegetation growth.</p>	<p>December, March, and July</p>	<p>May 2008 August 2008 October 2008</p>
<p>4.3 Testing Compost Results - Collect and test soil samples annually using soil tests common to agriculture and landscape industries. Results are to be used for education purposes on the benefits of compost. Soil test results to be posted on the project web site.</p>	<p>Initial soil analysis tests were taken by Texas Plant and Soil Lab in March and April 2007. Additional soil samples were not taken.</p>	<p>Annually in July</p>	<p>March 2007</p>
<p>4.4 Compare Compost Results - Identify scientific studies to be used to estimate reduction in pollutant loads by comparing historical fertilizer and pesticide application rates obtained in Task 2.3 to estimated pollutant loads expected from proposed organic methods. Estimate of pollutant load reductions</p>	<p>This task was not completed.</p>	<p>June 2006</p>	<p>Not completed</p>

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
included on compost web site and annual reports			
4.5 BMP Maintenance - Identify and address any BMP maintenance issues and associated costs. Incorporate necessary revisions to improve soil quality and reduce water use.	For the period ending May 31, 2008, August 31, 2008, and October 31, 2008, BMP maintenance for the eight compost application sites was reported as minimal and generally consists of sprinkler head adjustments with minimal to no cost involved. There are no suggested revisions to improve irrigation efficiencies and runoff reductions for either of the two project activity quarters.	As needed	May 2008 August 2008 October 2008
4.6 Compare Landscape Methods - A comparison will be made where possible to contrast the differences between portions of the demonstration site using traditional landscape methods and portions of the demonstration site using natural compost methods.	From early May to early June 2008, the sites offered good visibility of growth differences between compost and non-compost site areas. As a result of constant and heavy rainfall from mid June to August 2008, steady growth of the composted areas has been observed. In addition, steady growth of vegetation has been observed for adjacent non-compost areas. In October 2008, the same results were observed as the previous periods.	October 2006, 2007, and July 15, 2008	August 2008 October 2008
Objective 5: Increase public awareness and education			
5.1 Develop educational program - Develop educational program, compile existing research and examples for workshops. Develop and pilot the Clean Texas GreenScapes Partnership program to encourage implementation of BMPs and to offer incentives and recognition to participants.	The TCEQ, City of Weslaco staff, and Hidalgo County-TX Cooperative Extension worked together to develop the agenda and educational materials for the workshops and demonstrations. A formal Clean Texas GreenScapes Partnership program was not established. However, through the work with the partnering cities and county within this project, landscape BMPs were promoted along the Lower Rio Grande Valley.	June 2006	May 2007

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
<p>5.2 Nonpoint Source Pollution Workshops - Schedule and conduct six (6) general audience workshops in the Lower Rio Grande River Valley year. Address pollution issues (e.g. household hazardous wastes, storm drains, fertilizers and pesticides, construction activity, etc.), improving soils and water conservation. Provide participants with information on water quality, irrigation, compost, and water conservation. Agendas and participation records will be submitted with the semi-annual progress reports.</p>	<p>Conducted 8 NPS workshops: -February 21, 2007: Texas Recreation and Parks Society Conference -July 19, 2007: Weslaco City Hall -July 20, 2007: City of McAllen -October 30, 2007: South Texas College -March 28, 2008: Public Works Association Meeting, Weslaco -September 25, 2008 AM: City of McAllen Hike & Bike Trail -September 25, 2008 PM: City of McAllen Hike & Bike Trail -October 10, 2008: University of Texas Pan American</p>	<p>Annually</p>	<p>As outlined under Deliverables</p>
<p>5.3 Pollution Prevention Workshops - Schedule and conduct three annual landscape pollution prevention workshops in the Lower Rio Grande River Valley for the professional landscapers. Compile pollution prevention information, develop workshop agendas, public outreach and education materials and participation records will be provided to TCEQ with the semi-annual progress reports.</p>	<p>No pollution prevention workshops were conducted.</p>	<p>Annually</p>	<p>Not completed</p>
<p>5.4 Demonstration Site Workshops - Schedule and conduct four (4) workshops in the Lower Rio Grande River Valley during the first year for the demonstration sites. Workshop agendas, participation records, public</p>	<p>Completed four demonstration site workshops: - April 18, 2007: City of Weslaco Parks and Recreation Department -July 19, 2007: Donna City Hall -July 20, 2007: City of Brownsville -July 21, 2007: Hidalgo County & City of San Juan</p>	<p>To be determined.</p>	<p>As outlined</p>

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
outreach and education materials will be provided to TCEQ with the semi-annual progress reports.			
5.5 Workshop Questionnaire - Develop and provided workshop questionnaires to gage attitude changes as a result of the workshop.	A collaborative effort between TCEQ, City of Weslaco staff and Hidalgo County-TX Cooperative Extension developed an appropriate English/Spanish survey for workshops.	August 2006	May 2007
5.6 Project Signage - Install project signage at the beginning of the demonstration period on all participating properties for the term of the grant to recognize them for their commitment and efforts.	Contractor secured, signs completed and installed. Sample of signs included. See Attachment B for a sample of the sign.	Varies with compost installation date	May 2007
5.7 Survey Workshop Attendees - Survey workshop attendees and demonstration partners regarding changes in their landscape management practices.	Of the 12 workshops conducted, six workshops were surveyed. Three primary questions were asked: <i>-Did you find the information helpful? Yes/No</i> <i>-Will you use any of these practices? Yes/No</i> <i>-Would you attend more workshops like this? Yes/No</i> All attendees who responded indicated ‘Yes’ to the above questions. Attendees requested additional information on: <i>“-Farm/ranch composting</i> <i>-Native plants and butterflies</i> <i>-Rainwater collection systems</i> <i>-Master composting classes</i> <i>-Marketing compost use on sport fields</i> <i>-Mulching</i> <i>-Recycling program made easy</i> <i>-Tour of composting facility”</i>	60 days after each workshop	July 2007
5.8 Survey Local Compost Producers - Survey local compost producers to determine changes in volumes of compost sold.	At the time of the survey, only one commercial compost producer was in the Lower Rio Grande Valley – EarthWise Organics. This company was interviewed to determined sales history of compost. The interview	June 2006, January 2007, and August 2008	May 2007

Tasks	Deliverables	Projected Date(s)	Completed Date(s)
	<p>showed that in 2005, 15,000 tons were sold and in 2006, 20,000 tons were sold.</p> <p>City of McAllen's first year of full production was in 2007. Therefore, they were not surveyed.</p>		
<p>5.9 Professional Conferences - Attend, exhibit and present at select regional, state and national professional association conferences to increase TCEQ and partners' knowledge and training.</p>	<p>Attended and presented at the Texas Recreation and Parks Society Conference on February 21 to 23, 2007.</p> <p>Exhibited at the Mid-Valley Home Fair, August 25, 2007.</p> <p>Attended Compost Camp, October 20-22, 2008</p>	<p>As schedules allow</p>	<p>February 2007</p> <p>August 2007</p> <p>October 2008</p>
<p>5.10 Project Website - Develop project website and update at least semi annually to include comprehensive information on the project (participants, activities, environmental results).</p>	<p>Due to the delay in the project's schedule and changes in project managers, a program web site was never formally established to document the project accomplishments. General information about composting was updated and maintained at: www.tceq.state.tx.us/assistance/nav/composting.html</p>	<p>Semi-annually: February and August</p>	<p>Not completed.</p>
<p>Objective 6: Submit final report.</p>			
<p>6.1 Annual and final reports - Prepare annual reports documenting activities conducted during the fiscal year. A Draft and Final Report will be provided documenting activities conducted under the project and an estimate of pollutant load reductions.</p>	<p>2006 annual report submitted. 2007 annual report submitted. Final report submitted</p>	<p>August 2006 August 2007 August 2008</p>	<p>September 2006</p> <p>September 2007</p> <p>October 2008</p>