



# Environmental Improvement Goals Workbook







you have sitting around just like that? What about other things that you bought more of than you needed just in case? There are environmental consequences associated with manufacturing and transporting all of these items. The more that each of us buys “just in case”, the more has to be manufactured and transported and pollution is created just to get the item to the store shelf for you to buy. Why spend money on something you don’t need? Reduce at the source to prevent pollution and save money.

The second way to reduce solid waste is to recycle. Paper, plastic, glass, cardboard, and tin and aluminum cans are all candidates for recycling. Around a marina items such as batteries, oils, lubricants, and scrap metals may also be candidates.

The third way to reduce solid waste is to compost. Vegetative food waste like potato peels and old lettuce leaves can go into a compost pile along with landscape trimmings. Not only do you reduce solid waste, you get back a rich organic fertilizer that will benefit your landscape in many ways.

Your Solid Waste Worksheet

Indicator	Amount of solid waste disposed		
Unit of measurement	pounds		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of solid waste disposed in the twelve months prior to your certification date	pounds	Amount of solid waste you will be disposing of by the end of your third year	pounds
What activities do you plan to undertake to achieve your goal?			

Example Solid Waste Worksheet

Indicator	Amount of solid waste disposed		
Unit of measurement	pounds		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007

Amount of solid waste disposed in the twelve months prior to your certification date	10,000  pounds	Amount of solid waste you will be disposing of by the end of your third year	6,000  pounds
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Institute recycling programs for one or more of the following: paper, plastic, glass, metals, plastics, aluminum and tin cans, used oil and lubricants, and lead-acid batteries</li> <li>2. Institute a buy-only-what-you-need purchasing policy</li> <li>3. Start composting all restaurant vegetative waste along with all landscape and yard trimmings</li> <li>4. Install a pet waste collection station to provide bags for dog owners to pick up their dog's waste and dispose of it properly (this is good for preventing nonpoint source pollution as well)</li> <li>5. Install a fish cleaning station so that waste is not disposed of in the water</li> </ol>		

## Resources

EPA Waste Wise

<http://www.epa.gov/wastewise/>

Recycle Texas Online - find a recycler

[www.recycletexasonline.org](http://www.recycletexasonline.org)

RENEW - a marketing channel for facilities that want to buy, sell, trade, or recycle: Surplus materials, by-products, or wastes

[www.renewtx.org](http://www.renewtx.org)

Freecycle Groups in Texas - the worldwide Freecycle Network is made up of many individual groups across the globe who are giving (& getting) stuff for free in their own towns.

<http://freecycle.org/display.php?region=US+Southwest>

## B. Environmentally Preferable Purchasing

Environmentally Preferable Purchasing (EPP) is choosing to purchase products that have some environmental benefit such as recycled paper or remanufactured toner cartridges. EPP is not just about purchasing recycled or remanufactured content. If you are purchasing a new company vehicle, it could be about selecting one that pollutes less such as one rated as an Ultra Low Emissions Vehicle (ULEV) or a Super Ultra Low Emissions Vehicle (SULEV). It could also mean buying used instead of new. With a new product, there are many environmental impacts going all the way back to obtaining the raw materials that went into the new product. Used products had environmental impacts when they were first manufactured. As a second, third, or fourth owner you are preventing all the environmental impacts that are associated with manufacturing a new item and spreading the environmental impacts of the used item over a longer life.

One of the easiest ways to insure that you are purchasing an item that qualifies as EPP is to purchase it from one of the vendors participating in the Texas Recycled program. These vendors sell everything from paper products to parking stops to landscaping products. You can find out about the vendors and their products by visiting [www.TexasRecycled.org](http://www.TexasRecycled.org). You can also talk to your regular vendors and see what types of EPP products they have available.

### Your EPP Worksheet

Indicator	Amount of EPP products purchased		
Unit of measurement	Dollars		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of EPP products purchased in the 12 months prior to your certification date	\$	Amount of EPP products you will be purchasing by the end of your third year	\$
What activities do you plan to undertake to achieve your goal?			

### Example EPP worksheet

Indicator	Amount of EPP products purchased		
Unit of measurement	Dollars		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of EPP products purchased in the 12 months prior to your certification date	\$200	Amount of EPP products you will be purchasing by the end of your third year	\$500
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Purchase all recycled content paper</li> <li>2. Purchase remanufactured oils and lubricants</li> <li>3. Purchase rebuilt parts for boat engine repair</li> <li>4. Purchase nontoxic cleaning supplies</li> <li>5. Switch to a "green" landscaping service or pest management service</li> </ol>		

## Resources

Texas Recycled - Products manufactured in Texas with recycled content

<http://texasrecycled.org/>

EPA

EPP Resources

<http://www.epa.gov/oppt/epp/>

Database of Environmental Information for Products and Services

<http://yosemite1.epa.gov/oppt/eppstand2.nsf>

Purchasing Guidelines

<http://www.epa.gov/oppt/epp/documents/pfs.htm>

Solid Waste Management Coordinating Board EPP Guide

<http://www.swmcb.org/EPPG/default.asp>

Pacific Northwest Pollution Prevention Resource Center

Topical Report on EPP

<http://www.pprc.org/pprc/pubs/topics/envpurch.html>

EPP Product Certification Sites

<http://www.pprc.org/pprc/pubs/topics/envpurch.html#certif>

Green Product Databases

<http://www.pprc.org/pprc/pubs/topics/envpurch.html#database>

Specific Product and Services Resources

<http://www.pprc.org/pprc/pubs/topics/envpurch.html#product>

National Pollution Prevention Roundtable EPP Presentation

[http://www.p2.org/workgroup/epp/EPP2Web\\_files/frame.htm](http://www.p2.org/workgroup/epp/EPP2Web_files/frame.htm)

## C. Water Conservation

Even though your facility is located next to water, water conservation can be important. Conserving water means that the water in your area goes further in satisfying the needs of all the homes, businesses, and farms that share the water supply. Water is in short supply in many parts of Texas. Conserving water is part of doing your share to make sure everyone has the water they need.

It also takes electricity to pump water and somewhere somebody is generating that electricity. Most electricity in Texas is generated by burning coal or oil or natural gas. Burning anything to create electricity creates one or more of several different types of air pollution.

Conserving water means pumping less water which means using less electricity which results in creating less air pollution. And remember that you also pay the electric bill so water conservation can have an impact on your electric bill.

### Your Water Conservation Worksheet

Indicator	Amount of water used		
Unit of measurement	Gallons		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of water used in the 12 months prior to your certification date	gallons	Amount of water you plan to be using by the end of your third year	gallons
What activities do you plan to undertake to achieve your goal?			

Example Water Conservation Worksheet

Indicator	Amount of water used		
Unit of measurement	Gallons		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of water used in the 12 months prior to your certification date	100,000 gallons/year	Amount of water you plan to be using by the end of your third year	75,000 gallons/year
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Replace 20% of landscaping with drought tolerant natives</li> <li>2. Fix all leaks</li> <li>3. Replace faucets in bathrooms with automatic shut-off faucets</li> <li>4. Install low-flush toilets</li> <li>5. Install low-flow showerheads in locker rooms</li> <li>6. Install drip irrigation in flower beds and mulch beds well to keep moisture in soil</li> <li>7. Install a rain water harvesting system to collect water for irrigation</li> </ol>		

**Resources**

WaterSmart

<http://www.watersmart.org/>

Rain Water Harvesting

[http://www.twdb.state.tx.us/assistance/conservation/Alternative\\_Technologies/Rainwater\\_Harvesting/Rain.asp](http://www.twdb.state.tx.us/assistance/conservation/Alternative_Technologies/Rainwater_Harvesting/Rain.asp)

Water Conservation

[http://www.tceq.state.tx.us/permitting/water\\_supply/water\\_rights/conserve.html](http://www.tceq.state.tx.us/permitting/water_supply/water_rights/conserve.html)

Xeriscaping

<http://www.tceq.state.tx.us/assistance/compost/Xeriscaping.html>

**D. Energy Conservation/Renewable Energy**

As was discussed in the water conservation section above, most electricity in Texas is generated by burning coal or oil or natural gas. Burning any of these results in one or more types of air pollution.

There are other environmental impacts of generating electricity. The biggest has to do with getting the coal or oil or natural gas out of the ground and to the generating plant. The process of getting these substances out of the ground creates land, water, and air pollution. Transporting them creates more pollution from the trucks carrying the coal, oil, or natural gas. If the natural gas or oil is going through a pipeline, it takes electricity to pump it.

Conserving energy also means that every ton of coal, every barrel of oil, and every cubic foot of natural gas is used to its fullest. If each of these is made to go further, then its environmental impact is reduced. For example, if a ton of coal generates electricity for 100 homes but conservation makes it possible for that same ton to generate electricity for 110 homes then we

are doing more with less. That margin means less pollution from mining to burning and that is good for all of us.

Energy conservation also means money saved for you. If you don't use the electricity, you don't have to pay for the electricity.

In addition to conserving energy, changing from electricity generated by burning a fuel to electricity generated by a renewable source such as wind, solar, or hydroelectric also has a beneficial environmental impact. For every kilowatt generated without burning a fuel a certain amount of air pollution is not created. So buying electricity generated without burning a fuel, "green energy," is an important way to improve the environment.

#### Your Energy Conservation Worksheet

Indicator	Amount of energy used		
Unit of measurement	kWh		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of electricity used in the 12 months prior to your certification date	kWh/year	Amount of electricity you plan to be using by the end of your third year	kWh/year
What activities do you plan to undertake to achieve your goal?			

#### Example Energy Conservation Worksheet

Indicator	Amount of energy used		
Unit of measurement	kWh		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of electricity used in the 12 months prior to your certification date	500,000 kWh/year	Amount of electricity you plan to be using by the end of your third year	450,000 kWh/year
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Replace all incandescent light bulbs with fluorescent ones to reduce heat load on AC</li> <li>2. Install awnings to reduce solar heat gain from sun shining into buildings</li> <li>3. Increase insulation in attic areas</li> <li>4. Apply a cool roof coating to reduce solar heat gain by increasing reflectivity of roof</li> <li>5. Replace appliances and equipment with Energy Star rated ones</li> <li>6. Install individual meters to make energy monitoring more efficient</li> </ol>		

To set your Green Energy Purchasing goal use the following worksheet

Indicator	Amount of energy purchased		
Unit of measurement	Percentage of energy purchased		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of electricity used in the 12 months prior to your certification date	%	Amount of electricity you plan to be using by the end of your third year	%
What activities do you plan to undertake to achieve your goal?			

Example Green Energy Purchasing goal

Indicator	Amount of energy purchased		
Unit of measurement	Percentage of energy purchased		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of electricity used in the 12 months prior to your certification date	0.00 %	Amount of electricity you plan to be using by the end of your third year	10 %
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Install solar panels to meet some of your energy needs</li> <li>2. Install a solar hot water heater</li> <li>3. Purchase green energy</li> </ol>		

## Resources

Energy Star - a government-backed program helping businesses and individuals protect the environment through superior energy efficiency

<http://www.energystar.gov/>

Electricity Choice and Green Power

<http://www.infinitepower.org/greenpower.htm>

Texas Electric Choice

<http://www.powertochoose.org/default.asp>

## E. Nonpoint Source Pollution

Nonpoint Source Pollution (NPSP) is pollution that cannot be attributed to a specific source such as a treated sewage effluent discharge pipe that empties into a creek, river, or lake. NPSP is the pollution that results when rain runs across parking lots or off farm fields or city yards carrying with it the oil or transmission fluid that dripped onto the lot from parked cars or the excess fertilizer, pesticides, or herbicides that were applied to fields or yards.

If your marina has a parking lot, you are contributing to NPSP everytime some rain runs off your parking lot into the water. If you have landscaping to which you apply any fertilizer, herbicides, or pesticides, you could be creating NPSP there as well. The chemistry of NPSP and its affect on aquatic habitats is complex. It can kill fish and other aquatic organisms, create algae blooms, and increase the growth rate of aquatic plants such as duckweek and hydrilla. None of these results are desirable so reducing NPSP is an important activity for all marinas

The CT program has several different ways to measure NPSP. This is because there are several different actions a marina can take to reduce NPSP.

To prevent or reduce the amount of NPSP coming from parking lots it is important to install a vegetative barrier like a lawn or flowerbed between the parking lot and the water body. This is measured in square feet of barrier installed.

To reduce the amount of NPSP from landscaping, it is important to reduce the amount and toxicity of the fertilizers, herbicides, and pesticides used or to prevent rain water from running off the landscaping into the water body. The amount of fertilizers, herbicides, and pesticides is measured in pounds. A reduction in pounds can come from two different strategies. First using the same chemicals but using less of them or using the same amount of chemicals but switching to a less toxic variety. Preventing run-off can be done by installing berms or ponds which prevent the run-off from going into the water body. Berms are measured in linear feet installed. Ponds are measured in cubic feet of capacity installed. Berms and ponds do not have to be large. Instead of one big one, you can install lots of little ones hidden in an attractive landscape of lawns and flowerbeds. Each one you install counts toward your total.

Which of the activities you choose to reduce NPSP will determine how you measure it. You can choose one or more of the activities.

Your NPSP Worksheet for vegetative barrier to prevent run-off from a parking lot

Indicator	Amount of vegetative barrier installed		
Unit of measurement	square feet		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of vegetative barrier present prior to your certification date	square feet	Amount of vegetative barrier you plan to have installed by the end of your third year	square feet
What activities do you plan to undertake to achieve your goal?			

Example NPSP Worksheet for vegetative barrier to prevent run-off from a parking lot

Indicator	Amount of vegetative barrier installed		
Unit of measurement	square feet		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of vegetative barrier present prior to your certification date	50 square feet	Amount of vegetative barrier you plan to have installed by the end of your third year	200 square feet
What activities do you plan to undertake to achieve your goal?	Increase current 1' x 50' grass strip to 4' x 50' strip of grass, native bushes, and perennial plants		

Your NPSP Worksheet for reducing run-off from landscaping by altering chemical use

Indicator	Amount of chemicals used on landscaping		
Unit of measurement	pounds		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of fertilizers, herbicides, and pesticides used on landscaping prior to your certification date	pounds	Amount of fertilizers, herbicides, and pesticides you plan to use on landscaping by the end of your third year	pounds
What activities do you plan to undertake to achieve your goal?			

Example NPSP Worksheet for reducing run-off from landscaping by altering chemical use

Indicator	Amount of chemicals used on landscaping		
Unit of measurement	pounds		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of fertilizers, herbicides, and pesticides used on landscaping prior to your certification date	100 pounds	Amount of fertilizers, herbicides, and pesticides you plan to use on landscaping by the end of your third year	25 pounds
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Reduce amount of chemicals used by switching to integrated pest management strategies and installing more native landscaping</li> <li>2. Switch to less toxic chemicals</li> </ol>		

Your NPSP Worksheet for berm installation to prevent run-off from landscaping

Indicator	Amount of berm installed		
Unit of measurement	linear feet		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of vegetative barrier present prior to your certification date	linear feet	Amount of vegetative barrier you plan to have installed by the end of your third year	linear feet
What activities do you plan to undertake to achieve your goal?			

Example NPSP Worksheet for berm installation to prevent run-off from landscaping

Indicator	Amount of berm installed		
Unit of measurement	linear feet		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of berm present prior to your certification date	0 linear feet	Amount of berm you plan to have installed by the end of your third year	30 linear feet
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Installation of five crescent shaped berms of varying lengths to trap run-off on the low points of the landscaping to give the water time to soak into the ground</li> <li>2. Installation of filter berms around storm drains</li> </ol>		

Your NPSP Worksheet for pond installation to prevent run-off from landscaping

Indicator	Amount of berm installed		
Unit of measurement	cubic feet		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of vegetative barrier present prior to your certification date	cubic feet	Amount of vegetative barrier you plan to have installed by the end of your third year	cubic feet
What activities do you plan to undertake to achieve your goal?			

Example NPSP Worksheet for pond installation to prevent run-off from landscaping

Indicator	Amount of berm installed		
Unit of measurement	cubic feet		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of pond present prior to your certification date	0 cubic feet	Amount of pond you plan to have installed by the end of your third year	30 cubic feet
What activities do you plan to undertake to achieve your goal?	Installation of six ponds of varying size to trap run-off on the low points of the landscaping to give the water time to soak into the ground		

## Resources

Mimicking Nature To Solve A Water Pollution Problem

<http://www.nrdc.org/water/pollution/lid/lidinx.asp>

Stormwater Strategies

<http://www.nrdc.org/water/pollution/storm/stoinx.asp>

Low Impact Basics

<http://www.leelanaucounty.com/planningeduc0058.asp>

The Low Impact Approach

<http://www.main.nc.us/riverlink/content/12chap/chap12.htm#12.3>

Low Impact Development Center

<http://www.lowimpactdevelopment.org/>

Center for Watershed Protection

<http://www.cwp.org/>

How to Clean Up Our Water

<http://www.nrdc.org/water/pollution/gsteps.asp>

Storm Drain Stenciling

[http://www.tceq.state.tx.us/comm\\_exec/forms\\_pubs/pubs/gi/gi-212.html](http://www.tceq.state.tx.us/comm_exec/forms_pubs/pubs/gi/gi-212.html)

## F. Habitat Conservation or Creation

Conserving or creating habitat for wildlife is important. More than 94 percent of the land in Texas is privately owned. For this reason, the private sector must play a substantial role in conserving and improving habitat for wildlife.

There are many ways to conserve or create habitat:

1. Shelters like bird, bat, or butterfly houses can be erected.
2. Plants for food and shelter for wildlife can be planted.
3. Old tires, old Christmas trees, and other items can be sunk in water to create habitats for fish and other aquatic organisms. (Consult with local water authorities, the Texas Parks and Wildlife Department, and the regional office of the TCEQ before you start sinking anything to create underwater habitat or you may be accused of polluting the lake with trash.)

4. Set aside areas at the edge of your property to remain natural or to create natural areas.

Your Habitat Conservation or Creation Worksheet

Indicator	Amount of habitat conserved or created		
Unit of measurement	square feet		
Start Year (year you became a certified Clean Texas Marina)		End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	
Amount of habitat conserved/created in the twelve months prior to your certification date	square feet	Amount of habitat you will be conserving/creating by the end of your third year	square feet
What activities do you plan to undertake to achieve your goal?			

Example Habitat Conservation or Creation Worksheet

Indicator	Amount of habitat conserved or created		
Unit of measurement	square feet		
Start Year (year you became a certified Clean Texas Marina)	2004	End Year (year Clean Texas Marina certification ends - 3 yrs after certification)	2007
Amount of habitat conserved/created in the twelve months prior to your certification date	20 square feet	Amount of habitat you will be conserving/creating by the end of your third year	100 square feet
What activities do you plan to undertake to achieve your goal?	<ol style="list-style-type: none"> <li>1. Install 2 purple martin houses, 2 bluebird boxes, and a bat house *</li> <li>2. Plant 50 square feet of flower beds containing plants to attract hummingbirds and butterflies and to provide food for caterpillars (remember where butterflies come from) and for birds</li> <li>3. Create watering areas totaling six square feet suitable for both birds and butterflies</li> <li>4. Create a stone wall with cracks and crevices suitable as homes for toads, frogs, and lizards and planted with various native food plants to attract wildlife</li> <li>5. Create nursery habitat for young fish by sinking enough old Christmas trees in shallow water to cover 50 square feet of lake bottom</li> </ol>		

\* For calculation purposes, each bird, bat, or butterfly house is counted as one square foot

## Resources

Texas Master Naturalists - local corps of "master volunteers" dedicated to the beneficial management of natural resources and natural areas within their communities

<http://masternaturalist.tamu.edu/>

Wildlife Habitat Council - group of corporations, conservation organizations, and individuals dedicated to protecting and enhancing wildlife habitat

<http://www.wildlifehc.org/>

