

# CLEAN BUSINESS IN A WATERSHED

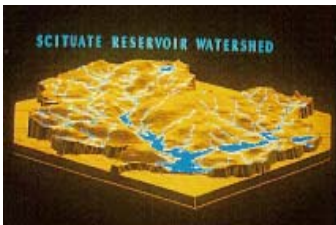


## The Scituate Reservoir Watershed Education Program

### ~~~~ Passing On Clean Water

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Above is a 3-D image of the Scituate Reservoir Watershed.

Portions of Foster, Gloucester, Johnston and Scituate comprise this land area.

The Scituate Reservoir, lying in the lowest part of this land area, catches all water flowing over this watershed.

The Scituate Reservoir is a major source of drinking water in Rhode Island.

### *Does your business have a solid public image?*

Perceptions hold an intense amount of weight, regardless of the validity of those perceptions. The general public may have some perceptions about your business that could be invalid and with only a little more information, the truth would be known, thus improving the productivity, wealth and health of your business.

**Perception is everything.**

**Perceive: to attain awareness or understanding of**

(Merriam Webster's Collegiate Dictionary)

You may have the perception that water quality is only affected by big industries or large farming operations. Or, you may think that only toxic wastes, not household cleaners and soaps, degrade water quality. Perhaps you have a difficult time making the connection between automobiles and water quality.

Let this bulletin change your perceptions on water quality.

Begin making informed decisions that not only improve the health of your drinking water, but also improve the productivity of your environment and your business operation.

## What's Driving Water Quality?

### PART ONE: PERCEIVING THE CONNECTION DRINKING WATER AND ENGINE-POWERED MACHINES



When most people think of pollution caused by automobiles and other engines, we think of air pollution. Although this assumption is true, autos (and other engine-fueled machines, like go-karts, dirt bikes, chain saws and lawn mowers) can also be significant contributors to water pollution. For example, oil, antifreeze and other fluids from the aforementioned equipment may leak onto the ground and then get washed into surface and ground waters. Or when tires and other parts of a car or dirt bike become worn down, some heavy metals (i.e. lead and iron) pollute water.

Water quality is driven down by things that are emitted from engine-powered technology, as well as unnatural conditions created by the roads that automobiles drive on.



## CLEAN SWEEP — BAD NEWS FOR WATER

Urbanization causes unnatural conditions for surface water. In nature when precipitation falls on the earth, there are elements called time and infiltration that help to clean the water before it reaches either the groundwater or nearby surface water. Over the years urbanization has increased, more roads and other impervious surfaces have been created, and more vehicles (as well as larger vehicles) are being driven.

As impervious surfaces, roads don't allow water to move through the asphalt in order to get cleaned or added to the groundwater supply. Roads, sidewalks, and driveways create conditions that move rain or melted snow into surface water at a much faster rate. Not only is the water moving faster, but instead of getting cleaner as it moves towards surface water, it is collecting more pollutants on its way to the water body.

Table 1 (below) lists typical pollutants found in runoff from roads and highways. The study was conducted by the US Environmental Protection Agency. Supporting information can be viewed at EPA's website: [www.epa.gov/owow/nps/education/runoff.html](http://www.epa.gov/owow/nps/education/runoff.html)

**Table 1. Typical pollutants found in runoff from roads and highways.**

### Sources of Pollution in Highway Runoff

	Pollutant	Source
<b>Sedimentation</b>	Particulates	Pavement wear, vehicles, the atmosphere and maintenance activities
<b>Nutrients</b>	Nitrogen & phosphorus	Atmosphere and fertilizer application
<b>Heavy Metals</b>	Lead	Leaded gasoline from auto exhausts and tire wear
	Zinc	Tire wear, motor oil and grease
	Iron	Auto body rust, steel highway structures such as bridges and guardrails, and moving engine parts
	Copper	Metal plating, bearing and brushing wear, moving engine parts, brake lining wear, fungicides & insecticides
	Cadmium	Tire wear and insecticide application
	Chromium	Metal plating, moving engine parts and brake lining wear
	Nickel	Diesel fuel and gasoline, lubricating oil, metal plating, bushing wear, brake lining wear and asphalt paving
	Manganese	Moving engine parts
	Cyanide	Anti-caking compounds used to keep deicing salt granular
	Sodium, calcium & chloride	Deicing salts
	Sulphates	Roadway beds, fuel and deicing salts
<b>Hydrocarbons</b>	Petroleum	Spills, leaks, antifreeze and hydraulic fluids and asphalt surface leachate

Adapted from Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters

What to expect in the the next 2 volumes of Clean Business :  
 Volume 7 -- Safely Using Gasoline & Oil  
 Volume 8 -- Making Investments for Future Generations



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