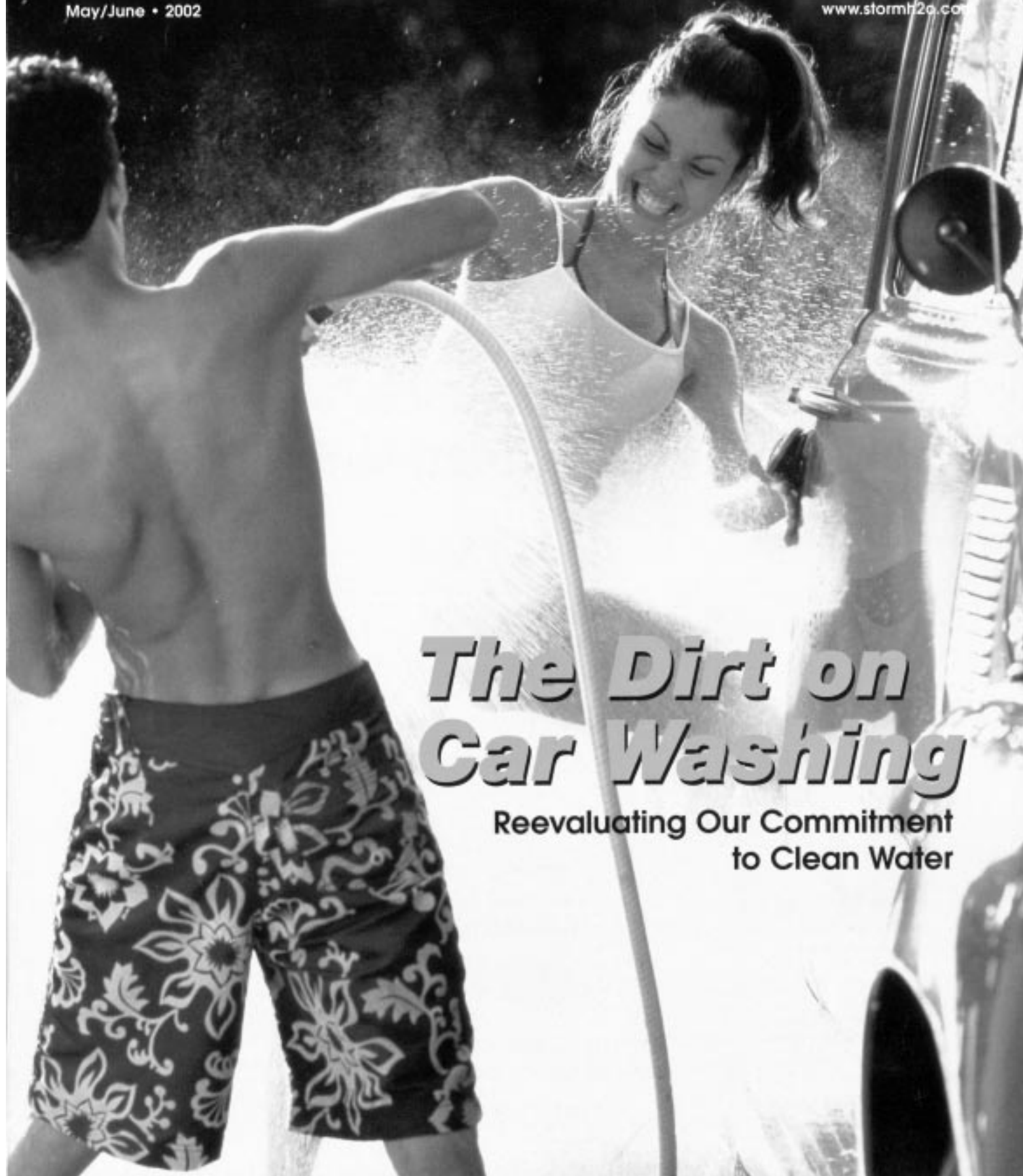


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# Stormwater

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## *The Dirt on Car Washing*

Reevaluating Our Commitment  
to Clean Water



Take Me Out to the

# Carwash:

## Successful Residential and Community-Based Nonpoint-Source Pollution Prevention

By Kevin Mercer

### *How one program is tackling the problem of lot-level runoff*

**W**ith summer well on its way, here's a little scenario that will most certainly play out in your watershed.

It's a sunny spring day; the birds are singing, trees are budding. Carolyn and Geoff decide to take Jasper the dog for a walk on the beach. But first, because it's such a fine day with no rain in the forecast, Geoff wants to engage in one of those time-honored spring rituals: washing the car.

He grabs the sponge, bucket, hose, and soap, as well as the no-scrub tire cleaner and the wash-on/wash-off wax he just picked up on sale. He then sprays down the car body and under the wheel wells to loosen up the accumulated grime or road salt, lathers up the car with a couple of buckets of Armor All or Turtle Wax wash, and polishes the chrome. After pouring out the last bucket and hosing down the driveway, he admires the car's shine.

Carolyn and Geoff take the leash and a few dog bags and head off to the beach. Along the way they pass a local scout troop snagging passersby: for a couple of bucks, the scouts wash cars in the school parking lot ... it's a great way to raise some money. Carolyn and Geoff roll into the beach parking lot, clip on the dog leash, and set off for a run. Carolyn comments that it looks like there's a foamy residue, almost like soapsuds, lying along the beach. Geoff is outraged that there are people who would pour soap into the water.

Unfortunately, Geoff and Carolyn are those people, and there are thousands more who pour untreated contaminants and detergent directly into the storm sewers daily without giving it another thought. They don't pause to think about it—and, chances are, neither does the local sewage district.

In fact, the practice and impact of domestic and community car washing are neither well understood nor adequately acted upon. Yet virtually no river, creek, lake, or seashore of any municipality is immune to its effects. It is a perfectly legal direct discharge of unregulated pollutants. Worst of all, there's nothing you can do about it. Or is there?

Photo: Kevin Dodge / Masterfile

Combating this scenario is just another of the stormwater manager's everyday duties in the City of Fort Worth, TX, on the Trinity River and Lake Worth; the City of Brantford, ON, on the Grand River; King County, WA, on Puget Sound; and Fairfield County, CT, on Long Island Sound. For these jurisdictions the problem is not unrecognized, and though it is in fact controllable, it remains an unregulated discharge.

This article explores the social, practical, and legal elements associated with the practice of washing one's car. We'll explore why, despite being an obvious source of dry-weather direct discharge, it gets so little respect or attention in the world of nonpoint-source pollution. We'll question why car washing is exempt from having to comply with the municipal separate storm sewer systems permits and what this says about our commitment to clean water.

Finally, we'll introduce you to a project developed by RiverSides Stewardship Alliance that aims, as one means of bringing residential property discharges into compliance, to phase out driveway car washing over the long term. We'll examine the practice, law, marketing, and social milieu of car washing, starting with an environmental perspective.

## Cars and Their Care

In the United States and Canada, there are more than 230 million cars and light trucks, and at one point or another—as frequently as weekly—they are all washed. A 1999 survey by the International Carwash Association found that 44.5% of Americans prefer home washing as a method of vehicle care. Furthermore, at least 75% of all cars are washed at home one or more times a year.

Combine this with the results of a study of highway runoff toxicity by the National Water Research Institute (NWRI), which characterized car detritus as one of the major nonpoint sources of heavy metals, oil and grease, and other components, such as rubber. NWRI concluded that road runoff contains potential, confirmed, or severe toxicity in three-fifths of all samples.

Taken together, the water-quality implications of these two studies are nearly unfathomable. Imagine regulating only 50% of the market and ignoring the remainder of the discharges. Anyone in the commercial car-wash industry would be quick to draw the conclusion that

there is a double standard. They'd be right. Most municipalities exempt practices on private property that they otherwise regulate on commercial or public property.

## The Water

The City of Toronto (ON) Works and Emergency Services Department estimates that the average driveway car wash uses a total of 440 lit. (116 gal.) of water. In this city of 4 million, domestic car washing is the second-largest source of peak water demand after lawn watering. In 1996, Toronto launched a social marketing effort called "Peak Pail" to encourage conservation during residential car-washing season. For \$15, residents could purchase a covered pail containing a sponge, a six-spray trigger nozzle, a package of six hose washers, and a water conservation booklet. The program illustrated the interdisciplinary blindness that winds up actually encouraging the practice of driveway washing in the name of conservation.

It was only in the name of water conservation that domestic car washing and lawn watering were virtually banned outright during the 2001 drought. Surprisingly, this ban was accepted with equanimity, although some considered it an overreaction since the entire Great Lakes watershed sits at their doorstep.

An informal RiverSides survey of municipal managers revealed that they considered the bans reasonable. When surveyed about the possibility of permanently phasing out domestic car washing, however, these same managers were not willing to compromise the same personal choice in favor of water quality they had restricted in the name of conservation.

## The Soap

Although you can—and people often do—use anything to wash a car, the car-care industry naturally recommends using its own products. Turtle Wax ([www.turtlewax.com](http://www.turtlewax.com)) warns customers that to do otherwise might damage a car's clear-coat finish. Nonetheless, people use everything from dish and laundry soap to vinegar and water or citrus-based cleaners.

The market for domestic car-wash cleaners consists of a wide variety of soaps, degreasers, waxes, cleaners, wipes, and sprays for the purpose of cleaning and "protecting." The North American domestic autowash market is a multimil-

lion-dollar business. Most interestingly, in terms of chemical composition, residential car-wash products are similar to much of what is used in the commercial industry.

Armor All's Web site at

[www.armorall.com/maint/pages/tires.html](http://www.armorall.com/maint/pages/tires.html)

offers a tip to product users: "Clean your car in an area that allows for evaporation of run-off and prevent entry into storm drains, streams, or any body of water." Why? What does Armor All know that some local stormwater managers don't? For one, it knows the constituent elements of its cleaners. If it doesn't recommend putting its products untreated into rivers or lakes, why should some consider it an exemption?

Does a consumer tip constitute fair warning enough to absolve a company of the liability for pollution? Does it exempt the consumer? We'll revisit this question later.

How do the detergents found in car-wash cleaners affect fish populations? Mainly through the power of the surfactants to destroy the external mucus layers protecting fish from bacteria and parasites, not to mention the severe damage to the gills. Most fish die when detergent concentrations are near 15 parts per million (ppm); however, detergent concentrations as low as 5 ppm will kill fish eggs. Detergents can also add to the problems of aquatic life by lowering the surface tension of the water. Organic chemicals, such as pesticides and phenols, are then much more easily absorbed by the fish. A detergent concentration of only 2 ppm can cause fish to absorb double the amount of chemicals they would normally absorb.

All detergents contain a surfactant so that the cleaner rinses off easily with water; some of the most popular types are synthetic phenol-based surfactants. Environment Canada and USEPA have identified these as being possible endocrine disruptors that trick the hormone system by mimicking estrogen. In wildlife, the end result is that aquatic species are not able to reproduce, and population levels decline.

## The Discharge

Every car wash discharges a fine toxic mix. Depending on what is used to wash the vehicle (let's say water alone is the minimum), driveway car-wash discharge consists of oils, grease, elements from brake linings, rust, trace amounts of benzene and possibly chromium, and a few



other goodies. Adding soap to the mix possibly introduces phenols, dyes, acids, and ammonia. Imagine what is in spray-off tire cleaner.

I'm inclined to believe the urban legend that more oil is deposited from car droppings on roads and driveways to rivers and lakes in North America than enters the waters of the world from tanker spills and disasters in one year. There's nothing like a detergent to loosen it up and send it to the local river.

Furthermore, the water that flows off a driveway picks up more than dirt; it becomes a thermal plume of warm, even hot, wastewater runoff that can differ from the average temperature of a receiving water body by as much as 10°C.

### Community Fundraising

Do community groups have an unmitigated right to raise money on the back of clean water? Is it okay for a scout troop to plant trees for riparian habitat one week and harm water quality the next with a fundraiser car wash?

I've heard it said by regulatory bodies that there is no way they'd challenge the ability of community groups to undertake fundraising car washes—they are practically national icons. For example, in the wake of the September 11 disaster, four sisters in Virginia raised money for the Red Cross through a community car wash. US President George W. Bush even endorsed it as a great idea for communities everywhere. Why did no one ask whether it could have been done without impacting local water quality?

Even a guide to raising money through community car washes, published by a mobile washing company in California, that suggests blocking up the storm drain during the event misses the point. It's more than the soapy water; the suspended solids settle out, the soap dries onto the asphalt, and all it takes is a good rain to wash it all into the river. An online discussion of car washing on the USEPA NPSinfo listserv concluded that even a citrus-based cleaner would contribute to a violation of the total maximum daily load if it wasn't exempt under the act.

Speaking of which, what is the law, anyway?

### The Law: A Little of Column A, a Little of Column B

Remember the earlier question about whether a consumer tip constitutes enough reasonable warning to absolve manufacturers from liability for pollution from the use of their products? Manufacturers and users can sleep tight knowing that domestic car washing is exempt from discharge regulations virtually throughout North America.

The exemption for domestic car washing is found in the National Pollutant Discharge Elimination System General Permit for Discharges from Municipal Separate Storm Sewer Systems Part I, Section B Eligibility (exemptions), No. 2. It states, "This permit authorizes the following non-storm water discharges *provided they do not contribute to a violation of water quality standards*: water from individual residential car washing" (emphasis added).

This begs the question: When can it be said that residential car-wash water (containing as it does the same potentially harmful elements as commercial car-wash discharge) does not contribute to a degradation of water-quality standards and therefore a violation? Why does it have to be directly attributable? Isn't that what nonpoint-source pollution is all about?

Municipalities exhibit a legal confusion with regard to what constitutes deleterious discharge. Take Brantford, ON, for instance. A Brantford bylaw restricts community fundraiser car-wash discharges but does not mention residential discharge.

A number of municipalities, Fort Worth, TX, among them, regulate commercial mobile washing but do not regulate community or residential discharges, despite the similarity of discharge. Fort Worth recognizes the commercial washing industry requires runoff permits but exempts residential lot-level discharges. The US military uses containment pads when washing its helicopters. Semitrailers and even trains regularly utilize runoff containment, but household and community car-wash discharge remains exempt.

King County, on Washington State's Puget Sound, has a strong education program against car-wash discharge but no permit requirements or phase-out goals. The Puget Sound Car Wash Association, recognized by the county, puts considerable effort into diverting discharge by offering the use of its facilities to community fundraisers.

A municipality that has limited driveway car washing is Calgary, AB, on the Bow River. Although car washing is not expressly forbidden, the Drainage Bylaw states that there can be no deleterious discharge from a property to the storm sewer system. The city fines violators \$300 and enforces the bylaw through a snitch line. Convicting violators is probably not the point, but the symbolism is powerful.

### The Commercial Car-Wash Market

Remember the statistic about 44.5% of all Americans preferring to wash their cars at home? There is a common misconception among the public and decision-makers that commercial washes are less environmentally appropriate than driveway washes. The public perceives splashing buckets of suds around at home as practically the epitome of family values. It doesn't help that the major auto manufacturers' advertising campaigns consistently reinforce the fun of home driveway washing.

True, the commercial car-wash industry bears part of the blame for its reputation. Early commercial car washes did practice water reuse, but not for conservation's sake, and quality suffered. The public rebelled and, to counter public misconceptions, the industry moved to an "only fresh water used" marketing strategy. To this day, the notion of the water-wasteful car wash is firmly entrenched in the public and political psyche.

The commercial car-wash industry is sometimes blamed for increasing frequency of drought, rising water prices, and all kinds of other evils. Since the mid-1980s, commercial car washes have faced conservation bans precisely because they are deemed to be a waste of water. Florida's current examination of a water conservation certification ranked car washes number two among industry groups to control. Meanwhile, the state has no restrictions on domestic or community car washing.

The reality is that most commercial car washes use 60% less water in the entire washing process than a simple home wash uses just to rinse off a car. Special pressure nozzles mix 50% air in with the water to create pressure without volume.

## Take Me Out to the Carwash

Remember the City of Toronto Peak Pail program? Exasperated by that flawed effort, RiverSides Stewardship Alliance began a process to tackle unregulated residential discharges.

It was during design and implementation planning for the WaterLinks program, designed by RiverSides for the City of Ottawa, that "Take Me Out to the Carwash" (TMOC) was created. As Canada's primary advocacy organization for watershed protection and municipal nonpoint-source pollution prevention, RiverSides specializes in social marketing programs that tackle the challenge of changing social habits that reinforce degradation of rivers and lakes.

RiverSides began its mandated work in 1995 with the establishment of the award-winning "Five Things You Can Do For Your River" social marketing campaign. In the intervening years, RiverSides has raised the profile of residential and commercial nonpoint-source pollution discharges to the extent that its name is synonymous with municipal source control and pollution prevention.

TMOC is a joint social marketing partnership of RiverSides and the Canadian Carwash Association (CCA). Once approached by RiverSides in 2000, the CCA realized the benefit of working cooperatively with a watershed protection organization whose mandate coincides with the CCA goal of restricting the unregulated competition it receives from household car-washing efforts.

During 2000-2001, TMOC grew to become a full-fledged public education campaign aimed at three sectors: the community, municipal decision-makers, and member businesses in the car-wash industry. The project tackles the perceived "right" of the public to pollute receiving water bodies through the practice of auto vanity.

Building on this multisectoral approach, TMOC developed three corresponding campaigns.

### Community

The community campaign combines media-based outreach—billboards, bus-shelter ads, public service announcements, and direct mail—supporting community car-wash demonstration events. The community campaign encourages groups and residents to drop the buckets and sponges in favor of clean-water pollution prevention.

The community car-wash events employ a Latimat containment system donated to RiverSides by Environmental Cleaning Systems Ltd. to highlight the impact that community and personal car washing has on local rivers and lakes. Residents are encouraged, through a direct-mail campaign, either to use a local car wash or to support local community fundraising at the Green Clean car washes sponsored by RiverSides with the Latimat containment system. RiverSides encourages municipalities to purchase a containment pad to loan or rent to local watershed protection organizations and community groups for the same purpose.

Working in cooperation with local car washes is another great way that has been demonstrated by the Puget Sound Car Wash Association. These community car-wash demonstration projects give the municipality a means of building partnerships with watershed protection organizations, community groups, and local business. They are great opportunities to partner on the message of nonpoint-source pollution prevention.

Community events also spread the word through T-shirts and specialized educational materials, and the heightened awareness of everyone involved that car washing does have a positive impact on the local watershed.

The TMOC community education project is scheduled to launch the week of April 21 as an Earth Day project for the CCA in the southern Ontario municipalities of Toronto, Hamilton, Ottawa, and Waterloo County (consisting of the towns of Cambridge, Waterloo, Kitchener, and Guelph).

### Municipal

One of the project's key goals is to encourage all jurisdictions to apply the law evenly. Consistency of nonpoint-source pollution education is a main goal, and nowhere is that more important than among municipal, county, and state decision-makers. As the long-term benefits of preventing lot-level pollution are recognized, the eventual outcome should be the elimination of a blanket exemption and the recognition of the impact of toxic discharges regardless of their individual loading.

RiverSides works to encourage municipalities to bring consistency to the treatment of discharges from residential and commercial properties, whether to the storm or sanitary sewer system. Through partnerships with municipalities, TMOC provides a framework for reaching residents with a message: What they do on their properties is directly attributable to the health of their watershed.

### Industry


The final element of the campaign addresses the car-wash industry itself. In partnership with Environment Canada, the TMOC project is implementing an environmental certification for all car-wash operations. Considering that the project drives business, it is not unreasonable that the industry be asked to set and achieve the highest standards for water conservation, compliance with local sewer use permits and bylaws, provisions for enhanced health and safety of its employees and customers, and the development and support of community partnerships.

## Timeline

TMOC is a five-year national approach that aims to develop a sufficiently sustainable method of phasing out the practice of domestic car washing in favor of clean water. The process will not happen overnight, but it is anticipated that the partners (RiverSides, the CCA and its members, municipalities, and the general public) will learn that to save watersheds from nonpoint-source discharges, they must take steps that challenge perceived notions of right and wrong while simultaneously moving forward with a community approach that builds support for clean water.

## Conclusion

We're proposing nothing less than overturning the inviolable right of residents to nonpoint-source discharge. The pollution from car washing doesn't quite rate with, say, combined sewer overflows, but it's a practice we can control through adequate social marketing while building community-business partnerships. TMOC demonstrates an innovative partnership between industry, community, and municipality that addresses unregulated discharges to our watersheds while building a supportive framework for community-based solutions.

So the next time you see a dirty car in the parking lot, don't write "Wash me" on it, write "Take Me to the Carwash," and practice a little guerrilla social marketing while you're at it. Your local river will thank you for it. 

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