

Public Education

Wet Weather Flow Management Practice (WWFMP) Type:
Management / Operation

Primary Mechanism: Inform the public about pollution prevention and stormwater management issues, solutions, regulations and related financing, using methods appropriate to the target audience and the specific issue. Involve the public in remedial action, cost saving through volunteerism, and to increase political support.



Educating the public with wildlife information signs

Related SWMPs: Water Conservation; Downspout Disconnection; Anti-litter Programs; Household Hazardous Waste Reduction; Control of Pesticides and Fertilizers; Safer Alternative Products; Vehicle Use Reduction; Leaf Clearing and Cleaning; Yellow Fish Road.

Description: A public education process involves the following steps:

1. Prepare the program.
 - Identify the problem and the solution;
 - Seek information and resources;
 - Identify and understand the target group;
 - Identify partners.
2. Design the Plan
 - Identify the product or desired result;
 - Consider costs and time limitations;
 - Consider roles and responsibilities of coordinator agency and partners;
 - Design promotion material and means of distribution.
3. Implement the Plan
 - Pretest the plan and make necessary changes;
 - Implement the plan and actions;
 - Monitor the effectiveness of the public education;
 - Monitor the effectiveness of the plan as a solution to the initial problem.

Key public education messages include:

- Stormwater and urban runoff are not treated; therefore, as these surface flows reach local bodies of water, they contain all of the pollutants that accumulate from everyday living and commerce.
- By making changes in daily habits, individuals can protect the health of local creeks, streams, rivers, lakes, bays and oceans.

Messages addressing specific sources of stormwater pollution could include:

- Educating the public that specific sources of stormwater pollution include automobile products, vehicle maintenance operations, litter, pet wastes, pesticides, fertilizer, erosion from construction sites and illegal sewer connections.
- These pollutants enter the storm drain as water from rainfall, overwatering or cleaning operations washes over outdoor surfaces.

- Specific outreach messages to business and/or groups typically revolve around encouraging the business to implement BMPs for their particular activity.

One reference (WERF 1998) noted that the three most commonly used messages related to wastewater pollution prevention inside homes and businesses are:

- To protect local bodies of water, it is important to avoid pouring toxic chemicals down drains leading to the sanitary sewer system.
- Most information materials emphasize alternatives that can readily replace household products that are toxic to the environment.
- There are properly designed and controlled facilities to safely dispose of household hazardous waste in most areas of the country. The public is usually provided with telephone numbers and other information necessary to make arrangement to properly dispose of common toxic wastes.

Application Requirements: Public education programs are most successful when a coordinator or facilitator is employed or appointed. In a municipal setting, staff time may be needed to research potential solutions to the issues under consideration. Volunteer partnerships can take some of the load during the entire process.

The costs are dependent on the approach used and the desired result, and there may be costs for printed material, distribution or for any visual aids, devices or other material used during the public education program.

Proven Effectiveness/Experience Elsewhere: Several municipalities in southern Ontario have undertaken public education programs related to pollution prevention. These include:

City of Toronto Downspout Disconnection Program, City Works Service. Contact Ted Bowering at (905) 392-7705.

Metro Toronto and Region Conservation Authority, Yellow Fish Road Program (ongoing). See the Website at www.trca.on.ca or call the Yellow Fish Road Coordinator at (905) 832-2289.

City of St. Catharines, Downspout Disconnection Campaign; Stoop and Scoop Program. Contact Cindy Toth. Pollution Control Plan Coordinator, (416) 688-5600, ext. 693.

Cost Considerations: Costs will be entirely dependent on the type of public education and outreach needed and the desired results. Some desired actions could be promoted by provision of materials such as water saving devices, rain barrels, or other aids. Volunteer help and partnerships will reduce the costs in many cases.

Objectives Addressed:

Technical Objectives (Terms of Ref.)	Measure Addresses
1. Achieve healthy aquatic communities	X
2. Reduce fish consumption advisories	X
3. Reduce erosion impacts	X
4 Re-establish natural hydrologic process	X
5. Re-establish natural features	X
6. Virtual elimination of toxic contaminants using pollution prevention at source	X
7. Achieve water and sediment objectives in watercourses and waterfront	X
8. Eliminate sanitary discharges in SSO, CSOs, bypasses, cross connections and spills	X
9. Improve body contact recreation in rivers and reduce beach closures	X
10. Eliminate aesthetic nuisances	X
11. Reduce basement flooding	X
12. Reduce sanitary sewer inflow and infiltration	X
13. Protect life and property from flooding	X

Opportunities Considerations:

- This practice will be evaluated by program review. Direct impacts on many of the objectives are difficult to measure.

References:

- Tools to Measure Control Program Effectiveness, Larry Walker Associates, WERF Project 98-WSM-2, 1999
- Water Environment Research Foundation 1998, Residential and Commercial Source Control Programs to Meet Water Quality Goals (*Project 95-IRM-1*)

Business Education and Awareness

Wet Weather Flow Management Practice (WWFMP) Type: Management / Operation

Primary Mechanism: Promote education of the business and industrial community on the impact of pollution on the environment and the pathways of pollution in an industrialized watershed. Foster an environment where expertise and information can be shared on pollution prevention at source.
 Related SWMPs: Hazardous Waste Reduction, Spills Control, Material Storage Control, Use of Alternative Products.



ISO 14000 standards for environmental management systems

Description: Components of a business education program can include:

- Surveying area businesses to determine what potential presently exists for at-source pollution.
- Identification of key business individuals that may become involved in an “umbrella” association to review the needs of the business community education on pollution prevention and applicable BMPs. The focus of the group can include information sharing, networking and contacts that will assist small business by providing low cost expertise.
- Provision of seminars, fact sheets and information packages on BMPs related to area businesses, and also on ISO 14001.
- Evaluation of the need and/or opportunities in a municipality to provide financial incentives to businesses to implement BMPs.

Application Requirements: A staff person is needed to coordinate surveys of area businesses, formation and support of any committees, and provision of educational materials, seminars, etc.

Proven Effectiveness/Experience Elsewhere: Emery Creek Environmental Association. Emery Creek is a tributary of the Humber River draining a mixed industrial-commercial-residential area in Toronto. The industrial association was formed in 1993 to address watershed concerns.

The Langstaff Ecopark in Toronto was officially opened in 1977 with a 2 km regeneration area through an industrial park along the upper West Don R. Local businesses along with volunteers have contributed towards creation of a new wetland and stormwater detention pond, tree plantings and construction of a trail system. Pollution prevention workshops have also resulted in some changes to more environmentally friendly industrial practices.

Regional Municipality of Waterloo. A Water Resource Protection Liaison Committee was formed in 1994 and includes regional staff and business, environmental and agricultural interests. Working groups focus on promoting voluntary resource protection in urban business and industries.

Cost Considerations: Staff time will be needed for business outreach programs. Costs will vary according to educational materials, seminar expenses and other outreach projects.

Objectives Addressed:

Technical Objectives (Terms of Ref.)	Measure Addresses
1. Achieve healthy aquatic communities	X
2. Reduce fish consumption advisories	X
3. Reduce erosion impacts	X
4 Re-establish natural hydrologic process	
5. Re-establish natural features	
6. Virtual elimination of toxic contaminants using pollution prevention at source	X
7. Achieve water and sediment objectives in watercourses and waterfront	X
8. Eliminate sanitary discharges in SSO, CSOs, bypasses, cross connections and spills	X
9. Improve body contact recreation in rivers and reduce beach closures	X
10. Eliminate aesthetic nuisances	X
11. Reduce basement flooding	
12. Reduce sanitary sewer inflow and infiltration	
13. Protect life and property from flooding	

Opportunities Considerations:

- This option can be evaluated as a program, with percent participation in the program measured as the number of industries implementing pollution prevention programs.

References:

- Toronto and Region Conservation Authority and Environment Canada, 1998, Your Business, the Don, Your Watershed, Making the Connection, a special publication brochure directed at company presidents or general managers.
- MOE, 1993, Pollution Prevention Planning Guidance Document and Workbook. Queens Printer, ISBN 0-7778-1441-2
- Canadian Centre for Pollution Prevention, 1998, ISO 14000 Guidance Document for a Business Community, prepared for the Ministry of the Environment an Emery Creek Industrial Association.

Yellow Fish Road Program

Wet Weather Flow Management Practice (WWFMP) Type: Management / Operation

Primary Mechanism: Stenciling of storm drain system (inlets, catch basins, channels and creeks) with warnings/advisories and graphic icons discourages the illegal dumping of unwanted materials. Advisories are distributed to homes in stenciled areas.

An effectively implemented stenciling program encourages change in personal behavior and helps minimize non-point source pollutants from entering the storm drain system. Catch basin maintenance is simplified through the reduction of disposed materials into storm drain inlets.



Children volunteer for the yellow fish road program

Related SWMPs: Drainage System Control.

Description: A volunteer workforce is created to stencil storm drain inlets, preferably with school children or scouting and guiding groups to reflect the initial principle of the program. Volunteer activity must be limited to low traffic areas with municipal staff taking responsibility for high traffic and congested areas. Education of groups, coordination and provision of standard stenciling kits is necessary. The program should also aid in the cataloging of the storm drain system.

Application Requirements: The primary staff demand is for program setup to provide marketing and training. A minimum of two persons is required for stenciling in high-traffic areas and commercial and industrial zones with appropriate safety measures in use (for example, reflective vests, flag person and signage). The storage and maintenance of stenciling kits requires planning.

Storm drain stenciling kits include stencil, paint, paint brush, plastic gloves, catch basin map, clipboard, instructions, liability release form, identification form, rags, whisk broom or brush, paper towels, trash bags, safety vest and a 5 gallon bucket to hold materials.

Proven Effectiveness/Experience Elsewhere:

- Grand River Conservation Authority with volunteer Girl Guide programs in Cambridge and Kitchener. See the website at www.grandriver.on.ca
- Toronto Region Conservation Authority. See the website at www.trca.on.ca

Cost Considerations: An educator/coordinator is needed to initiate and facilitate the program. A volunteer workforce serves to lower the program costs. Stenciling kits require procurement of durable and disposable items. Dedicated staff time will vary according to the frequency of the operation and the area to be covered.

Objectives Addressed:

Technical Objectives (Terms of Ref.)	Measure Addresses
1. Achieve healthy aquatic communities	X
2. Reduce fish consumption advisories	X
3. Reduce erosion impacts	
4 Re-establish natural hydrologic process	
5. Re-establish natural features	
6. Virtual elimination of toxic contaminants using pollution prevention at source	X
7. Achieve water and sediment objectives in watercourses and waterfront	X
8. Eliminate sanitary discharges in SSO, CSOs, bypasses, cross connections and spills	
9. Improve body contact recreation in rivers and reduce beach closures	X
10. Eliminate aesthetic nuisances	X
11. Reduce basement flooding	
12. Reduce sanitary sewer inflow and infiltration	
13. Protect life and property from flooding	

Opportunities Considerations:

- A program review will be carried out. Difficult to assess quantitative benefits.

References:

- California Storm Water Best Management Practice Handbooks; prepared by Camp Dresser & McKee, Larry Walker Associates, Uribe and Associates, Resources Planning Associates, for Stormwater Quality Task Force, March 1993.
- Toronto Region Conservation Authority web site: www.trca.on.ca

