

FIGURE 5.6 SUBWATERSHED MANAGEMENT UNIT 3C

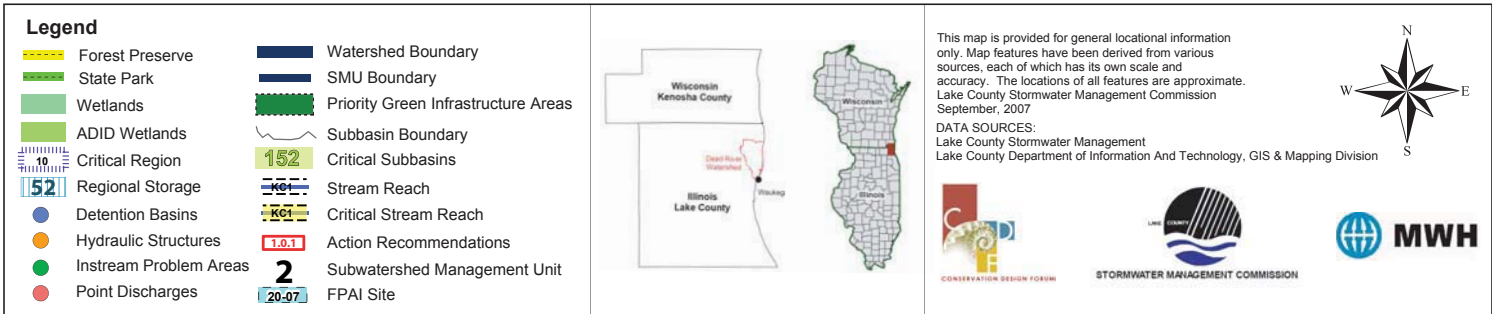
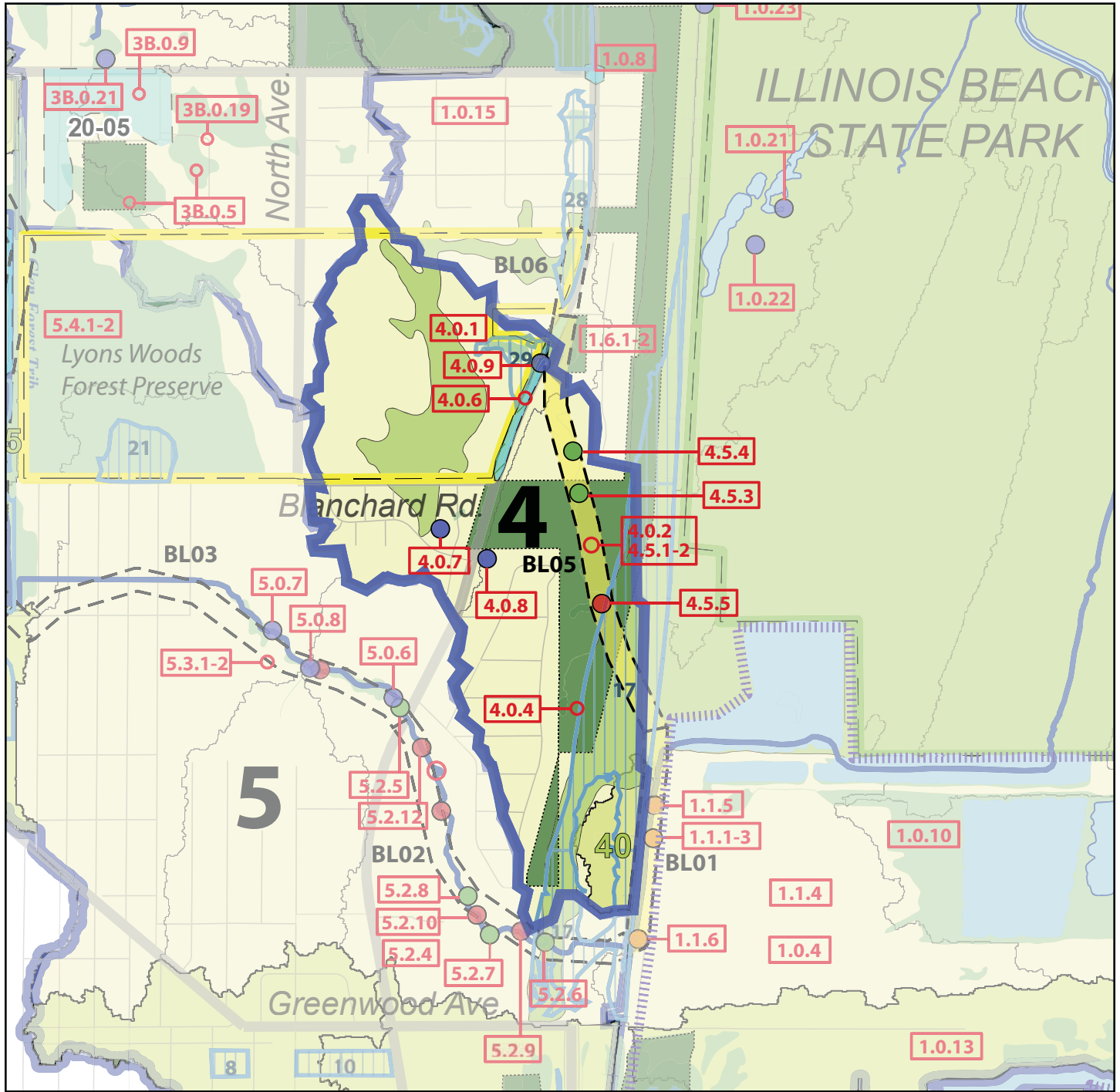
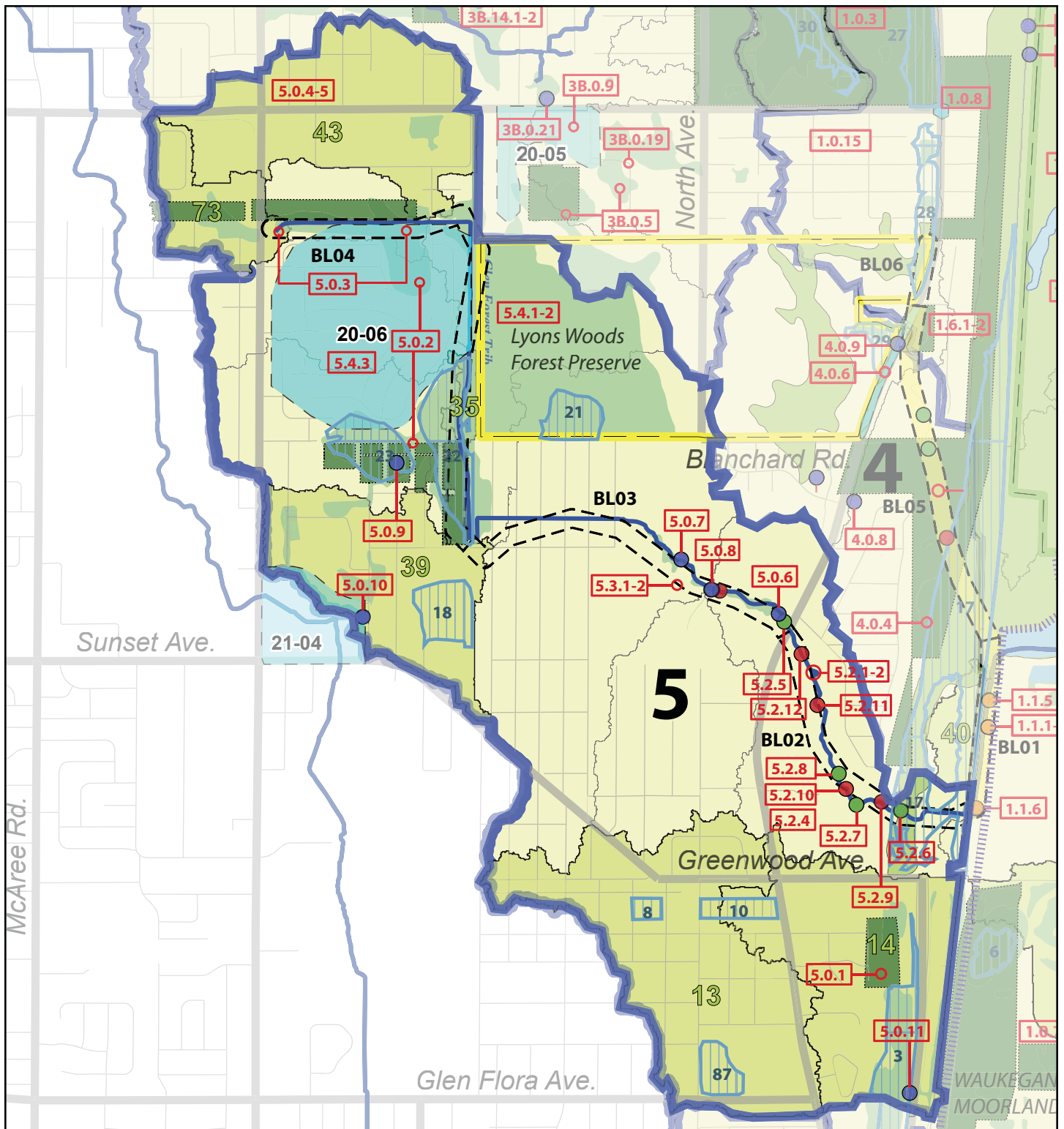


FIGURE 5.7 SUBWATERSHED MANAGEMENT UNIT 4



Legend

- | | |
|------------------------|-------------------------------------|
| Forest Preserve | Watershed Boundary |
| State Park | SMU Boundary |
| Wetlands | Priority Green Infrastructure Areas |
| ADID Wetlands | Subbasin Boundary |
| Critical Region | Critical Subbasins |
| Regional Storage | Stream Reach |
| Detention Basins | Critical Stream Reach |
| Hydraulic Structures | Action Recommendations |
| Instream Problem Areas | Subwatershed Management Unit |
| Point Discharges | FPAI Site |

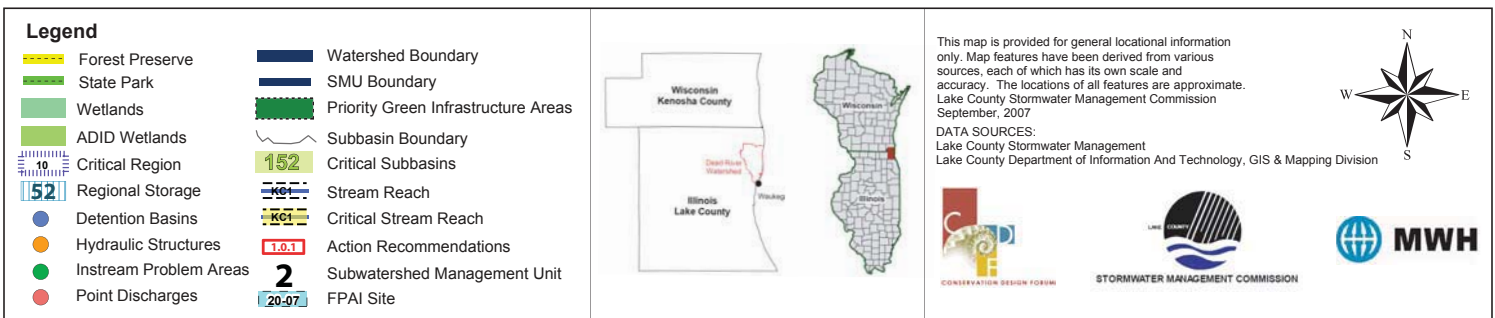


This map is provided for general locational information only. Map features have been derived from various sources, each of which has its own scale and accuracy. The locations of all features are approximate. Lake County Stormwater Management Commission September, 2007

DATA SOURCES:
Lake County Stormwater Management
Lake County Department of Information And Technology, GIS & Mapping Division



FIGURE 5.8 SUBWATERSHED MANAGEMENT UNIT 5



THE DEAD RIVER | WATERSHED - BASED PLAN

USEPA watershed-based plan element #5: public information and education plan.

5.4 INFORMATION AND EDUCATION PLAN

A watershed-based plan must include a strategy to inform and educate the public and stakeholders about watershed issues and to encourage them to take positive action, to support watershed plan implementation, to improve private land management, to become involved in watershed stewardship activities, and to change behavior that may be impacting watershed resources. Because many watershed problems result from individual actions and the solutions are often voluntary practices, effective public involvement and participation promote the adoption of management practices, help activate the implementation of the watershed-based plan, and encourage changes in behavior that will help improve watershed resources. Furthermore, the general public is often unaware of the environmental impact of day-to-day activities on environmental resources. An understanding of watershed issues and how individual activities can play a role in protecting water quality and other resources helps provide the motivation and basis for changing behavior.

There are a limited number of known education programs occurring within or near the watershed area, though there does appear to be a number of individuals and organizations actively involved in environmental issues, such as the Illinois Dunesland Preservation Society, the Waukegan Harbor Citizens Advisory Group, and volunteers involved with restoration and management in Illinois Beach State Park. These groups, whether through a dedicated education initiative or general public outreach and participation in the community, are engaged in an education and information campaign. A few programs, as reported by watershed stakeholders, include the following:

- The Waukegan Harbor Citizens Advisory Group is involved with educating local residents about issues related to the Waukegan Harbor Area of Concern. The group conducts meetings and tours in support of this goal.
- A new summer environmental day camp for area 5th grade students is currently in development for Bowen Park in Waukegan. This program will focus on life, earth, and watershed science and will use the nearby ravine as a living laboratory to connect children with nature.

- Within Bowman Park, the Chicago Botanic Garden and the United States Forest Service are initiating a program to train volunteers to help monitor amphibians within the park boundary.
- At Zion Benton Township High School, Larry Anglada teaches an environmental curriculum to students that includes water resources and aquatic biology.
- Area churches are taking on an environmental education role with technical support from Chicago Wilderness.

It is clear from the limited programs focused on environmental education that additional efforts are needed. This section of the Action Plan includes an identification of the target audiences and partner organizations, a brief description of evaluating the information and education plan, and specific action recommendations for conducting the information and education campaign, which are presented in Table XX. A general overall strategy for information, education, and public involvement to address watershed topics and issues is included in Appendix I, along with a list of resources for conducting the education campaign.

Watershed organizations that may be tasked with coordinating and guiding actions within the Dead River watershed should consider developing a separate education committee to help build and implement a more detailed information and education campaign.

5.4.1 TARGET AUDIENCES

To define the audience for educational outreach, contacts should be made with individuals, organizations, and decision-makers within the watershed community to determine their level of understanding of watershed issues and needs for further education and outreach. The intent is to include both existing partners, as well as stakeholders that previously have not been participants, and to be responsive to their needs for information as well as their motivations.

The primary target audiences for this plan are (1) residents and other landowners, (2) land and resource managers and organizations, (3) government officials and agencies, and (4) developers and contractors. More specifically, potential target audiences include the following, abbreviations are

5 prioritized action plan

keyed to the education tables:

1. Residents, other landowners, and visitors
 - Riparian residents and landowners (RR)
 - Non-riparian residents and landowners (NR)
 - Homeowner associations (HOA)
 - General public and visitors (GP)
 - Businesses and institutions (BI)
2. Land and resource managers and organizations
 - Land and resource managers, including farmers, golf course superintendents, facility managers, and site stewards (LM)
 - Organizations, committees, land trusts, professional associations, agencies, and special interest groups interested in the future and management of watershed resources (OG)
3. Government officials and agencies
 - Local governments, including municipalities, townships, counties, state, health departments, park districts, forest preserve districts, port authorities, and transportation departments that manage land within the watershed (LG)
 - Schools (S)
4. Developers and contractors
 - Developers and homebuilders (DH)
 - Consultants and contractors (architects, engineers, planners, landscapers, lawn care) working in the watershed (CC)

The various target audiences will need to hear different messages or the same message in different ways (and with different emphasis) through a variety of delivery mechanisms, as determined by this plan and through the initial contact with target audiences mentioned above. A number of strategies for crafting and delivering messages for watershed information and education are provided below. Single issue messages tend to be simple and effective, though messages can also be crafted to address multiple issues such as the link between hydrology and stream health.

5.4.2 PARTNER ORGANIZATIONS

Organizations that will be responsible for implementing the watershed plan recommendations can also help implement the information and education strategy as well as be target audiences. Each partner should couple plan implementation efforts with parallel efforts to inform and educate.

Beach Park Drainage District (BPDD)
Chicago Metropolitan Agency for Planning (CMAP)
Corporate and Business Landowners (CBL)
Developers & Homebuilders (DH)
Federal / Illinois Emergency Management Agency (FEMA/
IEMA)
Golf Courses (GC)
Illinois Department of Natural Resources (IDNR) (includes Winthrop Harbor)
IDNR Coastal Management Program (CMP)
Illinois / Lake County Departments of Transportation (DOT)
Illinois Environmental Protection Agency (IEPA)
Lake County Forest Preserve District (LCFPD)
Lake County Health Department (LCHD)
Lake County Planning, Building, and Development (PBD)
Lake County Stormwater Management Commission (SMC)
Lake Michigan Watershed Ecosystem Partnership (LMWEP)
Municipalities (all departments) (M)
National Audubon Society (NAS)
Natural Resources Conservation Service (NRCS)
Soil and Water Conservation Districts (SWCD)
Parks and Recreation Districts and Departments (PD)
Private Residential Landowners and Homeowners Associations (HOA)
North Shore Sanitary District (NSSD)
Townships (T)
Taskforce on Waukegan Neighborhoods (TOWN)
U.S. Army Corps of Engineers (USACE)
U.S. Department of Agriculture (USDA)
U.S. Environmental Protection Agency (USEPA)
U.S. Fish and Wildlife Service (USFWS)
Waukegan Harbor Citizens Advisory Group (WHCAG)

5.4.3 EVALUATING THE OUTREACH PLAN

Evaluation provides a feedback mechanism for ongoing improvement of your outreach effort and for assessing whether the effort is successful. It also builds support for further funding. The following ideas should be customized to particular needs of the party responsible for implementing the information and education campaign. For a number of these evaluation strategies, baseline information should be collected before the outreach activities begin and checked periodically throughout the outreach campaign to help measure progress and effectiveness.

Actual reduction in impairment of water quality in the Dead River is perhaps the best indicator of outreach effectiveness. While it is difficult to attribute water quality improvement to specific outreach strategy programs or actions, there is little doubt that increased understanding and involvement in the watershed is essential to watershed improvement. Specific information on monitoring and evaluating an education strategy are identified below.

5.4.4 INFORMATION AND EDUCATION STRATEGY FOR DEAD RIVER WATERSHED

The Information and Education Strategy tables on the next pages outline a general approach for providing education and outreach to watershed stakeholders. The table is organized by major Issues and Goals (dark green rows), and by topic area within each of the Issue and Goal categories. Different strategies may be appropriate for different scales, e.g., a watershed wide storm drain stenciling campaign or a targeted one-on-one outreach campaign for streamside landowners and residents. The table includes the following information and a key to the table is included at the end.

- **Issue and Goal:** the table is organized around major watershed issues and goals.
- **Topic:** a number of educational topics are recommended for each issue and goal.
- **Target Audiences:** indicates the primary audiences who need to hear the message or receive the information delivered. See the table footnote for explanations and acronyms.

- **Messages:** suggests a number of messages to be disseminated to address the topic, issue, and goal.
- **Delivery Mechanism / Format:** suggests the means by which the message should be distributed.
- **Anticipated Behavioral Changes / Outcomes:** indicates the desired outcome that will result when a message is properly distributed to the target audience.
- **Evaluation Indicators:** suggests means by which progress in implementing the Information and Education Strategy can be measured.
- **Lead + Partners:** recommends the primary parties that should be responsible for crafting and delivering the messages. See the table footnote for explanations and acronyms.
- **Schedule:** indicates the time frame for implementing the recommendation. See the table footnote for explanations and acronyms.
- **Priority:** indicates the relative importance of getting that particular message delivered. See the table footnote for explanations and acronyms.
- **Status:** this column is intentionally blank so that progress can be monitored within the table.

Table 5.16 Information and Education Plan

ISSUE:	Limited public understanding about watershed resources and the impact of human activities.									
GOAL:	Educate the public about general watershed issues.									
Topic	Target Audiences	Messages	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status	
General watershed awareness	GP A	<ul style="list-style-type: none">You live in a watershed, the area of land where all water drains to a single body of water, in this case, Lake Michigan.Rain falling on your property picks up pollutants found there and carries them to the stream and Lake Michigan. You can manage your property to reduce these pollutants and improve water resources.Help us keep your/our stream clean! YOUR actions impact the stream.Everyone can contribute to solutions, no matter how small the action.	<ul style="list-style-type: none">Messages in community newsletters.Simple public interest radio and newspaper advertisements.Additional signage at stream crossings.Post paper watershed maps in community buildings, government buildings, schools, and libraries.	<ul style="list-style-type: none">Landowners, residents, and the general public participate in watershed activities and events.The general public requests additional information, maps, materials, etc.	<ul style="list-style-type: none">Number of participants in watershed events and activities.Number of requests for additional information, maps, materials, etc	SMC M NRCS LCSWCD LCFPD LCHD AGL CMP TOWN LWWEF PD	Short to Long term	Medium		

Table 5.16 Information and Education Plan (continued)

ISSUE:	Stream restoration and management are needed to improve water quality and restore habitat.																
GOAL:	Restore and manage the stream system to protect and enhance stream and riparian health, function, and conveyance as part of a watershed green infrastructure system.																
Topic	Target Audiences	Messages – organize these messages by target audience	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status								
Stream restoration	RR HOA BI	<ul style="list-style-type: none">Improving the natural habitat features of the stream channel, stabilizing streambanks, and restoring the riparian buffer can bring fish and other native species back.Eroding streambanks contribute silt and sediment to the stream, impairing water quality, degrading aquatic habitat, and threaten property and infrastructure.	<ul style="list-style-type: none">Distribute stream management and restoration guidebooks and other print materials.Hold riparian landowner training workshops.Provide stream restoration stewardship and volunteer opportunities.Simple public interest messages on radio.	<ul style="list-style-type: none">Riparian landowners replace hardscape armoring with bioengineering practicesRiparian landowners actively restore stream habitat features.	<ul style="list-style-type: none">Number of riparian landowners reached / attending workshops.Number of stream restoration and stabilization projects.Participation in volunteer stream restoration events.Requests for assistance or funding for restoration projects.Number of reaches in the High or Moderate streambank erosion category.	SMC M BPDD NRCS LCSWCD LCFPD LCHD GC IDNR IEPA LMWEP	Short to Long term	High									
	LM LG CC	<ul style="list-style-type: none">Bioengineering practices, which use deep-rooted plants and other "soft" solutions to stabilize eroding streambanks, are more effective than rip rap, concrete, and other "hardscape" solutions, and are less detrimental to the stream channel and habitat.Hardscape solutions are strongest when installed and get weaker over time, while bioengineering practices are weakest when installed and get stronger over time.	<ul style="list-style-type: none">Distribute technical stream restoration and stabilization manuals.Hold technical restoration training workshops.Install stream restoration / stabilization demonstration projects.Provide list of funding and technical assistance sources.	<ul style="list-style-type: none">Land managers and local governments stabilize streambanks with bioengineering practices	<ul style="list-style-type: none">Number of streambank stabilization projects.Number of reaches in the High or Moderate streambank erosion category.	SMC M BPDD NRCS LCSWCD LCFPD LCHD GC IDNR IEPA LMWEP	Short to Long term	High									
Stream management	RR HOA BI LM CC	<ul style="list-style-type: none">You can improve water quality, stabilize streambanks, reduce erosion, and provide wildlife habitat by maintaining a minimum 30' native riparian buffer along the stream.Invasive and exotic plants can crowd out native plant communities and should be removed and replaced with deep-rooted, native riparian plant species.Save time and money: don't mow to the edge of the creek.Beautify your property: plant native plants and wildflowers along the stream.Landowners are responsible for maintaining the stream on his/her property. You can improve water quality, reduce erosion, and improve the appearance of the stream by keeping garbage, debris, and yard waste away from the stream and its banks.Rooftop and footing drains that discharge water from your property to the stream cause streambank erosion. Instead, direct this water into rain gardens or rain barrels.Removing creek obstructions and log jams can help reduce erosion and prevent local flooding problems.	<ul style="list-style-type: none">Distribute stream management guidelines and other print materials.Hold riparian landowner training workshops on riparian zone management.Publish articles in community newsletters.Provide stream management volunteer opportunities.Install informational signage at stream crossings.Simple public interest messages on radio.Website.	<ul style="list-style-type: none">Riparian landowners actively manage stream and riparian zone and establish native buffers.Riparian landowners stop dumping branches and other yard waste in and along the stream.Landowners reduce activities that worsen streambank erosion such as rooftop drains, mowing to the edge of the stream, and dumping yard waste.	<ul style="list-style-type: none">Number of riparian landowners reached through workshops.Number of stream management volunteers.Linear feet of riparian buffer actively managed.Requests for assistance or funding for restoration projects.	LMWEP SMC M BPDD NRCS LCSWCD LCFPD LCHD GC IDNR IEPA LMWEP	Short to Long term	High									

Table 5.16 Information and Education Plan (continued)

ISSUE:	Stormwater runoff contributes to impaired water quality, eroding streambanks, and flooding.										
GOAL:	Improve stormwater management to enhance water quality and reduce erosion and flood damage.										
Topic	Target Audiences	Messages – organize these messages by target audience	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status		
Stormwater management	RR NR HOA BI LM	<ul style="list-style-type: none">You can help reduce ravine and streambank erosion and improve water quality by reducing the amount of stormwater leaving your property and entering the stream or storm sewer.You can install stormwater BMPs to filter and infiltrate stormwater runoff.Minimize the impact of installed drains (e.g., flexible corrugated plastic pipes), on your property by directing them into a rain garden or other on-site infiltration BMP.	<ul style="list-style-type: none">Distribute stormwater management how-to materials such as rain garden guides.Hold property owner training presentations and workshops on stormwater management.	<ul style="list-style-type: none">Landowners voluntarily act to reduce the rate and volume of stormwater being discharged to ravines and/or stream channels.Landowners stabilize erosion around infrastructure on their property, and report infrastructure problems to the proper authorities.	<ul style="list-style-type: none">Number of landowners and land managers reached.Number of drain retrofit projects.Number of on-site infiltration projects for roof and site runoff.	SMC M BPDD HOA LCPBD IEPA LMWEP TOWN	Short to Long term	High			
	LG LM BI HOA	<ul style="list-style-type: none">You can maintain the conveyance capacity of the stream, reduce erosion, and improve water and habitat quality by repairing and maintaining failing, impaired, or obstructed stormwater outfalls, culverts, and channels.You can retrofit detention basins and drainage swales to help improve water quality and infiltrate water into the ground.	<ul style="list-style-type: none">Meet with landowners, municipalities, and others who manage these stormwater features.Hold training presentations and workshops on stormwater infrastructure management.	<ul style="list-style-type: none">Stormwater infrastructure managers and municipalities monitor, maintain, and repair the conveyance system and structures on a regular basis.Stormwater infrastructure managers and municipalities actively manage and retrofit detention basins and swales with deep rooted vegetation and other measures to help improve water quality.	<ul style="list-style-type: none">Number of swale and detention basin retrofit projects.Number of new detention basins and swales using BMPs.	SMC M BPDD HOA LCPBD IEPA LMWEP TOWN	Short to Long term	High			

Table 5.16 Information and Education Plan (continued)

ISSUE:	The watershed experiences flood risk and flood damage.									
GOAL:	Reduce flood damage and prevent increased flooding to protect public and private property and investments.									
Topic	Target Audiences	Messages	Delivery Mechanism	Anticipated Behavioral Changes / Outcome	Evaluation Measure	Partners	Schedule	Priority	Status	
Floodproofing and flood risk awareness	RR NR HOA BI	<ul style="list-style-type: none">Landowners in and near the floodplain should be aware of flood risk and the importance of flood insurance.Landowners can protect their property and mitigate flood losses and/or flood damage through buyouts and floodproofing techniques.Landowners can call on a variety of local and county agencies for flood response assistance.Excess water has to go somewhere: your basement or the floodplain?Floodproofing is expensive.Avoid developing within the floodplain or floodprone areas, which exposes property and infrastructure to flood damage risk.Development of the watershed has resulted in an increase in runoff volume and the expansion of the floodplain, thereby exposing a greater area to risk of flood damage.Protect the natural drainage system as green infrastructure to prevent flooding.	<ul style="list-style-type: none">Distribute print information to landowners with property in or near floodplain or flood problem areas.Hold workshops for landowners on floodproofing and flood awareness.Website	<ul style="list-style-type: none">Floodplain insurance held by all who need it.At risk structures are flood-proofed.	<ul style="list-style-type: none">Number of flood prone property owners reached.Number of structures insured, flood proofed, or removed from the floodplain or flood prone areas.	FEMA LCPBD IEMA M BPDD SMC	Medium term	Medium		
Runoff rate and volume control	RR NR HOA BI LM DH LG	<ul style="list-style-type: none">Watershed problems associated with excessive stormwater runoff rate and volume can be addressed by using conservation development practices and stormwater BMPs.	<ul style="list-style-type: none">Hold training sessions for municipalities and the development community on the importance of preserving the natural drainage system and the risks and costs associated with developing within the floodplain or floodprone areas.Hold training workshops and presentations on stormwater BMPs, low impact (LID), and conservation development design.Install stormwater BMP demonstration projects.Provide model stormwater BMP standards and ordinances.	<ul style="list-style-type: none">Municipalities require stormwater runoff volume and rate control BMPs in new development.Increase in voluntary retrofits of developed areas to reduce runoff rate and volume.	<ul style="list-style-type: none">Number of participants in workshops and presentations.Number of requests for BMP information / assistance.Number of Section 319 or WMB funding requests for BMPs.Number of developments using stormwater management BMPs or LID techniques.	SMC LCPBD M BPDD LCSWCD	Short term	Medium		
Sanitary system problems	RR NR BI HOA	<ul style="list-style-type: none">Poor sanitary system design, stormwater infiltration into sanitary sewers, and cross connections between the two have led to sewer backups into buildings.Building owners should install one-way flow valves in sewer drains, which prevent backups, until the larger infrastructure problems can be solved.Landowners inspect their sanitary sewer lines and correct any I&I problems on their property.	<ul style="list-style-type: none">Distribute print information to property owners in areas where sanitary sewer backups occur.	<ul style="list-style-type: none">Building owners install one-way valves in sewer drains.	<ul style="list-style-type: none">Number of property owners reached.Number of system / drain protection projects.	NSSD LCPBD M BPDD	Short term	Medium		
	LG	<ul style="list-style-type: none">Local governments and the North Shore Sanitary District inspect sanitary sewer lines and interceptors and correct any I&I problems within their systems.	<ul style="list-style-type: none">Presentations to municipal and agency officials regarding the impact of cross connections and techniques for fixing problems.	<ul style="list-style-type: none">Local governments and other responsible parties identify, plan, and correct infiltration, inflow, cross connections, and poor designs that have resulted in backups.	<ul style="list-style-type: none">Number of infrastructure remediation projects completed.	NSSD LCPBD M BPDD	Long term	Medium		

Table 5.16 Information and Education Plan (continued)

ISSUE:	A complete and interconnected green infrastructure network is important for protecting watershed resources and natural hydrology.								
GOAL:	Protect, restore, and enhance a green infrastructure network of terrestrial and aquatic resources including streams, riparian corridors, wetlands, floodplains, ravines, depositional areas, and upland resources.								
Topic	Target Audiences	Messages	Delivery Mechanism	Anticipated Behavioral Changes / Outcome	Evaluation Measure	Partners	Schedule	Priority	Status
Green infrastructure planning and implementation	RR NR GP LM LG	<ul style="list-style-type: none"> An interconnected system of open spaces, natural areas, wetlands, floodplains, streams, and stream buffers can help maintain the hydrologic and biologic health of the watershed. A preserved green infrastructure system is essential for preserving and restoring the health of Lake Michigan. Protected green infrastructure can increase property values for nearby landowners. Preserving natural drainage and storage areas, floodplains, wetlands, and riparian corridors helps to prevent flashy stream systems that cause erosion, absorbs excess stormwater, and reduces the risk of flooding. 	<ul style="list-style-type: none"> Provide watershed tours to exhibit green infrastructure elements. Presentations on green infrastructure at community and board meetings. Host land preservation workshops for landowners. Distribute electronic and paper maps that show the green infrastructure system coverage. 	<ul style="list-style-type: none"> Voluntary landowner preservation and restoration of green infrastructure elements through integration into private and public development, permanent conservation easements, and/or integration into land management plans. 	<ul style="list-style-type: none"> Number of attendees at watershed tours and events. Number of residents and others reached at community meetings. Number of acres of green infrastructure protected. 	M SMC LCPBD LCFPD PD CMAP LMWEP IDNR BPDD BCN CW OLP	Long term	High	
	LM LG OG	<ul style="list-style-type: none"> Everyone needs to do their part and collaborate on preserving green infrastructure important to the health of the watershed. Local governments, park districts, and the forest preserve district are essential partners in the effort to protect green infrastructure elements. 	<ul style="list-style-type: none"> Presentations on green infrastructure at board meetings. Provide conservation design / Low Impact Development standards to local governments and the development community. Distribute electronic and paper maps that show the green infrastructure system coverage. Communities convey the message to landowners & developers during the development review & permitting processes. 	<ul style="list-style-type: none"> Local governments adopt and incorporate the Green Infrastructure Plan into their Comprehensive Plans. Long term preservation of corridors through easements and acquisition. Communities include green infrastructure preservation in their capital and public works budgets. Communities develop incentives for developers & landowners to preserve green infrastructure during site design & development. 	<ul style="list-style-type: none"> Number of local governments adopting the Green Infrastructure Plan. Number of communities adopting conservation design / Low Impact Development standards. Number of local government officials and staff reached at community meetings. Number of acres of green infrastructure protected. 	M SMC LCPBD LCFPD PD CMAP LMWEP IDNR BPDD BCN CW OLP	Long term	High	

Table 5.16 Information and Education Plan (continued)

ISSUE:	The watershed contains unique natural resources in need of preservation, restoration and management.								
GOAL:	Preserve, restore, and enhance terrestrial and aquatic natural resources.								
Topic	Target Audiences	Messages	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status
Natural area / wetland management & restoration	GP LM LG S	<ul style="list-style-type: none"> The ecological health of the unique system of wetlands, dunes, and prairie found in Illinois Beach State Park and Spring Bluff Forest Preserve, some of which are found nowhere else on earth, depends on the interest and participation of watershed residents and stakeholders in the restoration and management of these systems. Every landowner and land manager can contribute to the ecological and biological quality of the watershed by planting native species, restoring small or large areas of land to native habitat, and restoring the stream corridor and riparian buffer. The watershed contains some of the last remaining undeveloped Lake Michigan lakeshore in Illinois, which supports a host of species including the migratory routes of numerous bird species. The lakeshore deserves continued preservation and improved management to restore this unique resource. 	<ul style="list-style-type: none"> Develop electronic media and printed advertisements. Provide natural area tours to exhibit the unique resources. Host natural area restoration and stewardship outings. Install demonstration restoration projects. Deliver presentations at community meetings, garden clubs, and libraries. Distribute a watershed ecology report card. 	<ul style="list-style-type: none"> Increased awareness of unique watershed resources and actions to improve them. Increased volunteer involvement in restoration and management activities, both by landowners on private property and by the public in publicly held natural areas. 	<ul style="list-style-type: none"> Number of participants in watershed tours and presentations. Number of volunteers participating in restoration events in IBSP, forest preserves, and parks. 	SMC LCFPD IDNR CMP LIMWEP PD BCN CW OLP DPS NAS USFWS LCPBD	Short to Long term	Medium to Low	
	RR HOA LM LG	<ul style="list-style-type: none"> Watershed ravines support unique and valuable ecosystems and provide important watershed functions that are being degraded by encroaching development, stormwater discharge, inappropriate management of edges and slopes, and dumping of yard waste and other debris. Landowners should set development back from ravine edges by a 50 foot, native buffer and restore a healthy layer of ground vegetation within ravines to help stabilize ravine slopes, reduce erosion, and protect property and infrastructure. 	<ul style="list-style-type: none"> Host ravine restoration and stewardship outings. Install demonstration ravine restoration projects. Distribute ravine management guidelines and directly contact ravine-side landowners and residents about appropriate practices for these sensitive resources. 	<ul style="list-style-type: none"> Ravine-side landowners voluntarily take appropriate management actions such as removing roof and footing drains from the ravines, installing and managing stabilizing ground vegetation, and avoiding land use activities that hasten ravine erosion. 	<ul style="list-style-type: none"> Number of participants in ravine restoration events. Number of ravine-side landowners and land managers contacted about proper ravine management. Number of in-ravine plastic pipe discharge points removed or remediated and removed from Action Plan. 	SMC LCFPD IDNR LIMWEP PD NRCS SWCD CW OLP LCPBD M	Short to Long term	High	

Table 5.16 Information and Education Plan (continued)

ISSUE:	Land use and human activity throughout the watershed are degrading water quality in the stream and Lake Michigan.									
GOAL:	Improve water quality in streams, lakes, and wetlands by reducing the impacts of land use and development, land management, and modified hydrology.									
Topic	Target Audiences	Messages	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status	
Yard and landscape management	RR NR HOA BI LM LG CC	<ul style="list-style-type: none">• Better turf and landscape management practices, which contribute organic matter, nutrients, pet waste, fertilizers, and pesticides to the stream, can improve water quality, reduce landscape maintenance costs, and increase profit ability.• Using phosphorous-free fertilizers minimizes nutrient loading to the stream.• Pick up animal waste before it can be washed into the stream.• Lawn chemicals are killing our streams and rivers.• Excessive application of chemicals and fertilizers wastes money.• Yard waste smothers beneficial vegetation along the stream.	<ul style="list-style-type: none">• Distribute yard and landscape management guidelines and other print materials.• Hold workshops for landowners, land managers, and landscape contractors.• Install demonstration natural landscaping projects.• Produce advertisements, public service announcements, and cable access spots.• Post billboards and posters.• Hold presentations at community and HOA meetings.	<ul style="list-style-type: none">• Landowners reduce fertilizer and pesticide application.• Landowners dispose of yard waste properly through mulching or bagging.• Landowners properly dispose of pet waste.• Landscape companies adopt environmentally-friendly management practices.	<ul style="list-style-type: none">• Number of people attending workshops and presentations.• Number of demonstration natural landscaping projects.• Number of landscape companies adopting environmentally-friendly practices.• Number of public reached through media, billboards, and advertisements (i.e., circulation).	M IEPA LCHD BPDD GC LCSWCD LMWEP PRL TOWN	Short term	High		
Golf course and agricultural land management	LM LG	<ul style="list-style-type: none">• Smarter agricultural and golf course management practices can improve water quality and save money.• Agricultural operations should plant cover crops and use conservation tillage.• Organic agricultural growing operations improve water quality by reducing the input of most detrimental chemicals.• Stream and pond buffers with deep rooted vegetation can reduce migration of pollutants to the stream and reduce streambank erosion.• Managing goose populations can reduce contribution of animal waste to the stream.	<ul style="list-style-type: none">• Distribute NRCS / SWCD and golf course management guidelines and other print materials, and directly contact agricultural and golf course land owners / managers regarding management practices.• Work with Audubon International and strive for Audubon certification on golf courses, using Thunderhawk Golf Course as a model.	<ul style="list-style-type: none">• Voluntary installation of stormwater BMPs such as filter strips.• Reduction in the amount of fertilizers and pesticides used.• Onsite water resources are buffered with natural vegetation.	<ul style="list-style-type: none">• Number of agricultural and golf course operations / acres using conservation and water quality improvement practices.• Number of Audubon certified courses.• Length and width of stream buffer on agricultural lands and golf courses.	NRCS LCSWCD LCFPD PD AI GC	Medium term	Medium		
Urban pollutants / stormwater BMPs	RR NR HOA BI LM LG CC OG S	<ul style="list-style-type: none">• Pollutants such as automotive chemicals, fertilizers, and pet waste collect on urban surfaces and rainwater runoff washes them into the stream, your drinking water, and your swimming beaches.• Filtration and infiltration practices installed on your property can help remove runoff pollutants before they enter the stream, watershed wetlands, and Lake Michigan.• Natural vegetation and BMPs can be installed virtually anywhere to help clean urban pollutants from our streams, wetlands, and Lake Michigan.	<ul style="list-style-type: none">• Distribute BMP guidelines to residents, landowners, local governments, consultants, contractors, developers, and homebuilders.• Conduct training workshops and deliver presentations at community and professional association meetings.• Articles in community newsletters.• Install and publicize BMP demonstration projects.	<ul style="list-style-type: none">• New development and redevelopment incorporates stormwater BMPs.• Local governments will adopt and enforce stormwater BMP guidelines and standards to reduce runoff and improve water quality.• Landowners and developers voluntarily retrofit existing development with stormwater BMPs.• Watershed residents reduce the release of urban pollutants into the landscape.	<ul style="list-style-type: none">• Number of communities adopting and enforcing BMP standards and guidelines.• Number of participants in educational workshops and meetings.• Number of new developments using stormwater BMPs.• Number of BMP retrofit projects.	M SMC IEPA LCHD LMWEP	Short term	Medium		

Table 5.16 Information and Education Plan (continued)

ISSUE:	Land use and human activity throughout the watershed are degrading water quality in the stream and Lake Michigan. (continued)							
GOAL:	Improve water quality in streams, lakes, and wetlands by reducing the impacts of land use and development, land management, and modified hydrology.							
Road, parking lot, and runway management	HOA BI LG WA DOTs	<ul style="list-style-type: none">• Runoff from roads, parking lots, and runways impairs water quality by carrying pollutants, including metals and automotive fluids, to the stream.• Installing permeable paving practices instead of conventional concrete or asphalt can improve water quality.• High chlorides are considered a pollutant of concern in the stream. Chloride levels are increasing in recent years as a consequence of road salt applications.• Improved highway and parking lot maintenance, regular sweeping, and lower salt application, can improve water quality.	<ul style="list-style-type: none">• Directly contact departments of transportation and public works departments through one-on-one contact, presentations, and workshops.• Distribute print materials to public works departments.	<ul style="list-style-type: none">• Improved highway and parking lot maintenance practices (e.g., use of alternative seal coating products, use of alternative deicing products or procedures).	<ul style="list-style-type: none">• Number of transportation and public works departments reached through contact, workshops and presentations.• Number of public works and highway departments adopting environmentally-friendly practices.	DOT IEPA M	Medium term	L
Construction site erosion	DH LG CC	<ul style="list-style-type: none">• Erosion from construction sites (and other sources) impairs aquatic life habitat in the stream, Illinois Beach State Park, and Lake Michigan.• Appropriate and cost-effective soil erosion and sediment control (SESC) measures can reduce the sediment input to the stream.• If you see a problem development site, call your local engineer.	<ul style="list-style-type: none">• Provide direct outreach, workshops, and presentations to municipalities regarding erosion control practices, standards, and enforcement.• Distribute print materials to developers and homebuilders working in the watershed.• Implement Certified Erosion Control Specialist programs	<ul style="list-style-type: none">• Improved soil erosion and sediment control measures that reduce the flow of sediment to streams, lakes, and wetlands.• Municipalities enforce and regularly inspect SESC practices.	<ul style="list-style-type: none">• Number of municipalities reached and number of participants in workshops and presentations.	M LCPBD NRCS LCSWCD IEPA	Short term	Medium
Waste and dumping	RR NR HOA BI LM LG CC S	<ul style="list-style-type: none">• Dumping of inappropriate substances into the stream or storm sewer seriously impairs water quality.• Burning of leaves in ditches or stream corridors contributes pollution to the stream.• If you see someone dumping garbage or other waste call your municipality.• Don't dump in the drain, it flows to Lake Michigan.	<ul style="list-style-type: none">• Hold watershed events such as stream clean ups and storm drain stenciling.• Distribute print advertising and door hangers.• Publish informational pieces in village newsletters.	<ul style="list-style-type: none">• Reduced dumping into the stream corridor or storm sewer system.• Less debris and garbage within the stream corridor.• Volunteer participation in stream clean up and stenciling events.• Residents properly dispose of household chemicals and fluids in collection centers.	<ul style="list-style-type: none">• Number of participants in watershed events.• Number of reports of debris dumping. .	M	Short term	H

Table 5.16 Information and Education Plan (continued)

ISSUE:	Development within the watershed will further degrade watershed resources.								
GOAL:	Future watershed development uses conservation and Low Impact Development practices.								
Topic	Target Audiences	Messages	Delivery Mechanism / Format	Anticipated Behavioral Changes / Outcome	Evaluation Indicators	Partners	Schedule	Priority	Status
Low Impact Development	HOA DH LG CC	<ul style="list-style-type: none"> Local government and developer commitment to better development approaches, such as Low Impact Development, is important to maintaining the integrity of watershed resources. 	<ul style="list-style-type: none"> Distribute guidelines and model ordinances to local governments and developers working in the watershed. Conduct training workshops and deliver presentations at community meetings and professional association meetings. 	<ul style="list-style-type: none"> New development uses Low Impact Development practices that protect on- and off-site water resources. Local governments adopt and enforce Low Impact Development standards and guidelines. Developers incorporate conservation design principles into site and stormwater design. 	<ul style="list-style-type: none"> Number of municipalities adopting and enforcing conservation design standards and guidelines. Number of participants in workshops and meetings. Number of new developments using LID practices. 	SMC LCPBD CMAP LMWEP	Medium term	Medium	

Audiences	Lead & Partner Organizations	Alliance for the Great Lakes	LCSWCD	Lake County Soil and Water Conservation District
A	AGL	Alliance for the Great Lakes	LCSWCD	Lake County Soil and Water Conservation District
BI	AI	Audubon International	LCPWD	Lake County Public Water District
CC	BPDD	Beach Park Drainage District	LMWEP	Lake Michigan Watershed Ecosystem Partnership
DH	BCN	Bird Conservation Network	M	Municipalities (all departments)
DOT	CMAP	Chicago Metropolitan Agency for Planning	NAS	National Audubon Society
GP	CW	Chicago Wilderness	NOAA	National Oceanographic and Atmospheric Administration
HOA	CBL	Corporate and Business Landowners	OLP	Open Lands Project
LG	DH	Developers and Homebuilders	PD	Parks and Recreation Departments
LM	DPS	Dunesland Preservation Society	PRL	Private Residential Landowners and Homeowners Associations
NR	FEMA	Federal / Illinois Emergency Management Agency	NSSD	North Shore Sanitary District
OG	GC	Golf Courses	TOWN	Taskforce on Waukegan Neighborhoods
RR	IDNR	Illinois Department of Natural Resources	T	Townships
S	CMP	IDNR Coastal Management Program	USACE	U.S. Army Corps of Engineers
WA	DOT	Illinois / Lake County Departments of Transportation	USDA	U.S. Department of Agriculture
	IEPA	Illinois Environmental Protection Agency	NRCS	USDA Natural Resources Conservation Service
	IISG	Illinois-Indiana Sea Grant	USEPA	U.S. Environmental Protection Agency
Abbreviations			USFWS	U.S. Fish and Wildlife Service
BMP	Best Management Practice		WHCAG	Waukegan Harbor Citizens Advisory Group
WPC	Watershed Planning Committee		WPA	Waukegan Port Authority
LID	Low Impact Development		YCC	Youth Conservation Corps
WMB	Watershed Management Board			
HOA	Homeowners Association			
Schedule				
Short	0-5 years			
Medium	5-10 years			
Long	10+ years			

