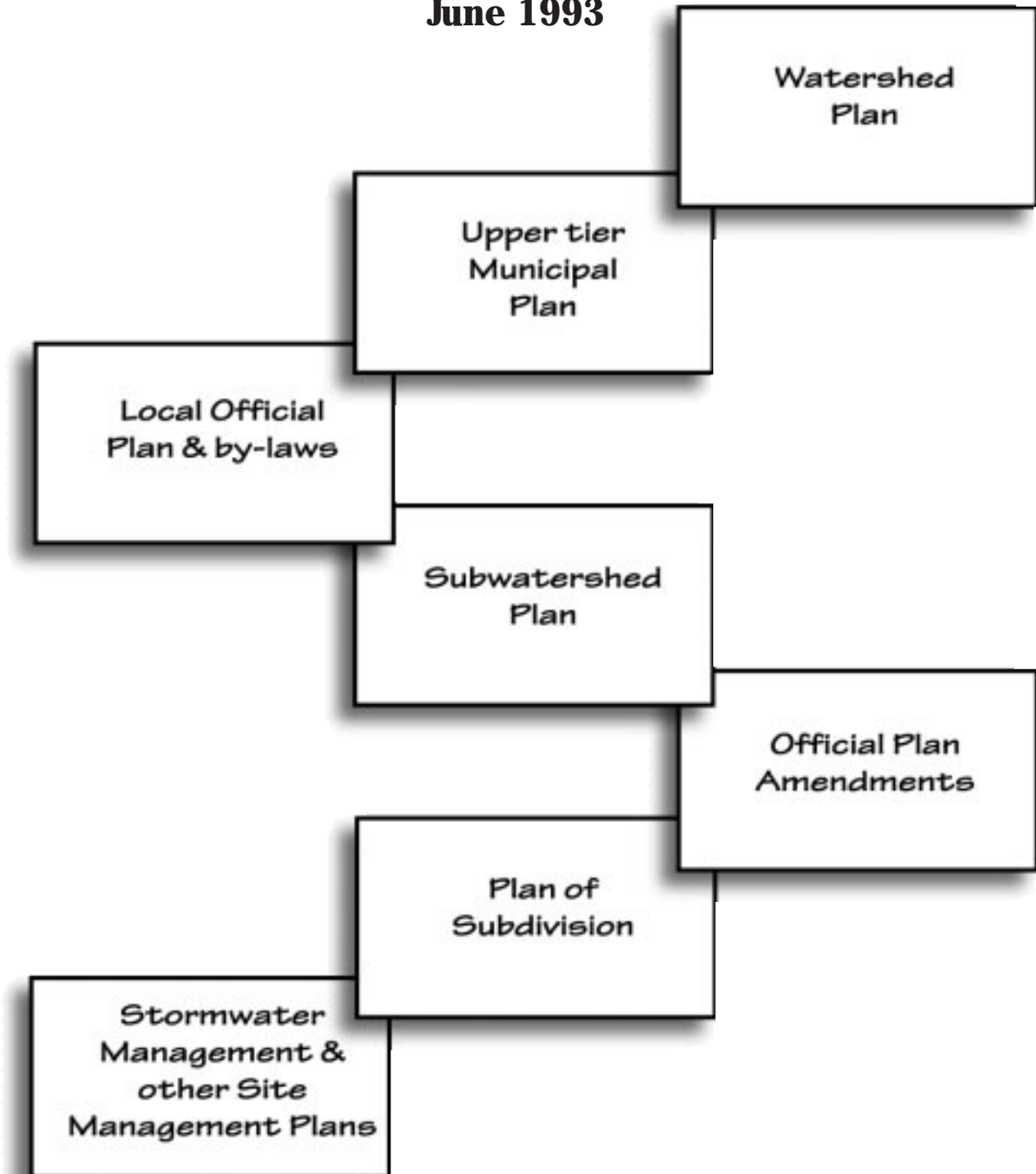


INTEGRATING WATER MANAGEMENT OBJECTIVES INTO MUNICIPAL PLANNING DOCUMENTS

June 1993



Subwatershed Planning

June 1993

Un résumé de cette publication est disponible en français.



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ACKNOWLEDGMENTS

The development of the discussion in this document, and two other related documents in this series, resulted from the thoughts, efforts and collaboration of a range of people from a number of government ministries and the private sector. The work built upon the efforts of interagency groups and committees who were involved in various water management activities and in developing this concept over several years. Contributors to this new direction for provincial water management included staff of the Ministries of Environment and Energy (MOEE), Natural Resources (MNR), Municipal Affairs (MMA), and Conservation Authorities. Representatives of a number of municipalities and engineering professionals from the consulting community and development industry in the private sector also contributed to this work.

The Provincial Urban Drainage Advisory Committee, an interagency group, has been a part of the evolution of watershed planning over the years. Also, the Waterloo Master Watershed Planning Committee, another interagency group, deserves mention as one of the first such groups to embark on watershed planning in the province.

At further stages, evolution of the concept of watershed planning also built on practical experience by some local agencies in watershed/subwatershed planning, and in the integration of this planning with municipal planning, notably in the Grand River and Credit River watersheds.

USING THIS DOCUMENT

The concepts and practical suggestions in this interim document are intended to assist those undertaking watershed planning in their communities, and to assist in the consistent application of provincial programs. This guidance is being provided to resource managers, planners and stakeholders for use over the next two years. During this time, provincial agencies will seek ways of effectively applying relevant programs and legislation to the development and implementation of watershed plans. Provincial participants in the watershed planning process will monitor how the ideas in these documents are used during the interim period, evaluating the processes used and the results achieved. Finally, on the basis of this experience, MOEE, MNR and MMA will develop optimum methods and processes for applying water management policies in the municipal land use planning process.

The suggestions here encourage municipalities to work together to address cross-boundary issues on a watershed basis. This approach is consistent with proposals found in other related documents on this matter, including: Draft Report on Planning and Development Reform in Ontario, Commission on Planning and Development Reform in Ontario; Streamlining Guidelines: The Development Review Process, Ministry of Municipal Affairs and Ministry of Housing; Growth and Settlement: Policy Guidelines, Ministry of Municipal Affairs; Cross-Boundary Issues in South Central Ontario: A Discussion Paper, Ministry of Municipal Affairs.

EXECUTIVE SUMMARY

Water and related resources are a matter of provincial significance because they are essential elements of our natural ecosystem. They sustain human, plant and animal life, and are important for agriculture, recreation, industry, energy production, domestic purposes, among a myriad of uses. A reliable supply of clean water is fundamental to our economic as well as social and individual well-being.

There is general concern, among water resource managers and the public alike, about the condition of Ontario's water resources, both their quality and quantity. Many municipalities are facing tough challenges in the protection of water supplies, the provision of water-based recreational opportunities, maintenance of fish habitat, flooding and erosion control, and general maintenance of the quality and integrity of rivers, lakes, ground water and wetlands. In these circumstances, it is important to consider the sustainability of these resources, and to manage them as effectively as possible, so that future generations will not need to bear the cost of needed remediation works. Effective water management now will maximize opportunities for the development of economically sound communities while maintaining the integrity of the ecosystem.

Land use decisions under the municipal planning process can significantly impact the quality and quantity of existing water resources. It is important that the effects of new developments and changing land uses be carefully assessed, not just on an individual basis, but taking into account the cumulative effects over time and over the wider watershed area. Land use decisions need to have regard for effective water resource planning and management to maintain and enhance water quality and quantity in the province.

In the municipal land use planning process, the official plan sets the municipality's goals and objectives for land uses within its jurisdiction, and provides policy direction which guides land development in accordance with the *Planning Act*. The official plan should recognize the aims and contributions of watershed and subwatershed planning. It can be used to promote and implement the objectives of water and related resource planning for the overall benefit of community planning and development.

To promote this approach, the Ministries of Natural Resources, and Environment and Energy, in consultation with the Ministry of Municipal Affairs, have produced this document to assist municipalities in developing official plan policies which incorporate the goals and objectives of water and related resource planning, protection and management.

1.0 PROVINCIAL DIRECTIONS IN WATER RESOURCE MANAGEMENT

The Province of Ontario is committed to ensuring that all water resources are maintained in or enhanced to a condition that has a healthy ecosystem, adequate supply, and clean contaminant-free water. The government stated in its first Throne Speech in November 1990, "*We will act to protect our supply of clean water. We will conserve and manage this precious resource and the watersheds that support it.*" Accordingly, watershed systems are managed to ensure that:

- a) water resources within a watershed are available in sufficient quality and quantity to provide optimal and continuous environmental, social, and economic benefits to existing and future residents of Ontario on a sustainable basis
- b) the integrity of aquatic, riparian and related terrestrial ecosystems are maintained or enhanced
- c) human life and property are not threatened by water or water-related hazards

The watershed and subwatershed basin are the suggested basis by which watershed systems are planned and managed to meet provincial objectives. Where possible, any proposed land use changes or development should be evaluated on the basis of their potential impact on the watershed or subwatershed system including upstream/downstream and cumulative effects of development activities.

Ontario is developing a broad watershed strategy to ensure that water and related resources are appropriately managed through the full range of planning and resource management practices that are carried out across Ontario. This document specifically addresses the need to efficiently incorporate water and related resource management into municipal official plans pursuant to the provisions of the *Planning Act*.

2.0- RELATIONSHIP BETWEEN MUNICIPAL LAND USE PLANNING AND WATER RESOURCE PLANNING PROCESSES

Watershed planning is recognized by federal and provincial governments as being the most effective means of evaluating and developing water-related resource management strategies and practices. Most decisions that are made on privately owned lands, however, are made in the context of the municipal land use planning process on the basis of municipal boundaries or property ownership. It is very important, therefore, that there be adequate linkages established to incorporate water and related resource management directions into the municipal land use planning process.

Watershed planning and management can be considered as a five-part framework which defines, on an increasingly detailed and localized basis:

- 1) broad water and related resource goals and objectives on a watershed basis

- 2) basic management strategies identified in a watershed management plan to meet stated goals and objectives and principles
- 3) specific directions to guide land use planning decisions through the development of subwatershed plans
- 4) water resource requirements on individual land parcels through site-specific plans such as a stormwater management plan and development conditions that will meet the goals, objectives and principles of subwatershed plans
- 5) specific management techniques through site plan controls, stormwater management plans, subdivision agreements, and erosion and sedimentation control by-laws

These components constitute levels of planning, but also aspects of watershed management when implemented. At all levels, clear roles and responsibilities are assignable to appropriate agencies or groups, and provisions are made for full public consultation.

Under the *Planning Act*, the municipal land use planning process sets out a distinct framework for the development of environmental, social and economic goals and objectives for the municipality. Implementing the watershed planning framework often entails specific actions which fall outside of the scope of the municipal land use planning process. Furthermore, the planning process alone cannot be expected to incorporate and implement all aspects of an effective watershed planning and management process. Therefore, linkages between the two processes are very important.

Other mechanisms under the administrative control of agencies such as the Ministry of Agriculture and Food, Conservation Authorities, Ministry of Environment and Energy, and the Ministry of Natural Resources are, in some cases, quite appropriate means for addressing the direction developed through the watershed planning process. The *Drainage Act*, *Lakes and Rivers Improvement Act*, *Public Lands Act*, federal *Fisheries Act*, *Conservation Authorities Act*, *Environmental Protection Act* and the *Environmental Assessment Act* are other types of legislation that can all be used to bring a watershed plan into effect. All administrative controls affecting watershed planning and management need to be integrated in order for an expeditious review and approvals process for proposed land use change to be achieved. Of course, considered input into all these mechanisms goes a long way to making the best possible land use and water management decisions.

The ultimate goal of the three planning documents in this series is to see that the appropriate components developed through the watershed planning and management process are incorporated and/or linked into the municipal planning process, as highlighted in Figure 1. This document focuses on those aspects of watershed planning and management that municipalities

can reasonably achieve through their Official Plans. This document should be read in conjunction with two companion documents: *Water Management on a Watershed Basis* and *Subwatershed Planning*.

2.1 Relationship of Upper and Lower Tier Official Plans

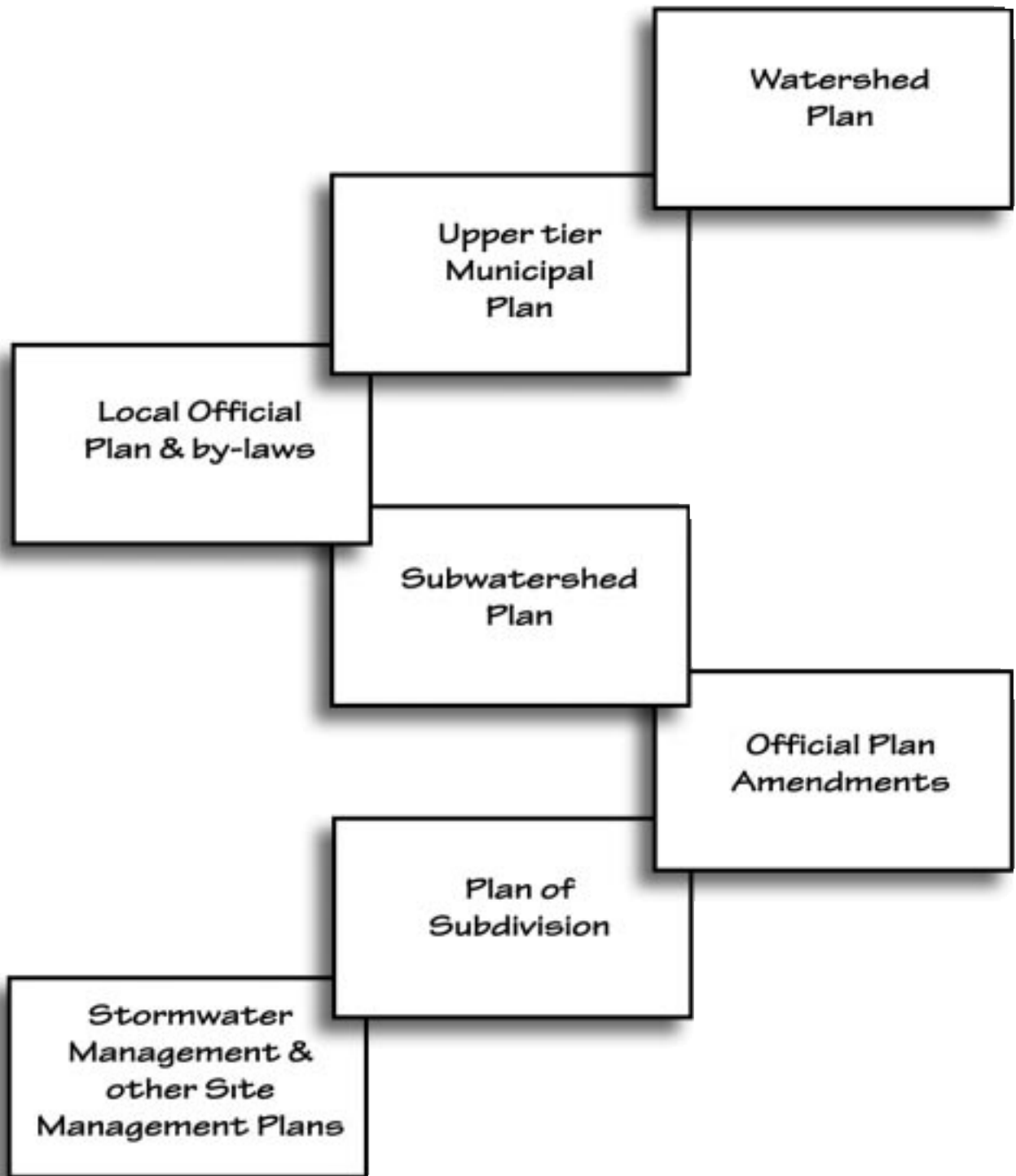
Because land use planning can be influenced by environmental issues beyond the boundaries of particular upper or lower tier municipality, it is important that these municipalities incorporate the input of agencies mandated to manage broader water and related resource management areas. Upper tier plans can provide for implementation of provincial policy and resource and growth management by means of a strategic, coordinated approach to physical (land use), social and economic development.

Upper tier official plans provide for the coordination and management of resources at a regional level. Because of wide geographical context, the plans should establish the broad land use strategy for the region or county, while at the same time outlining provincial interests and programs in municipal terms. The upper tier plan should provide a basis for allocating the area's resources among member municipalities and among various population concentrations in accordance with the goals and objectives it sets out. Upper tier municipalities are the appropriate level at which to develop strategies and provide direction for lower tier municipalities to protect environmental and resource features and areas. The upper tier plan is the document to which all lower tier plans adhere.

Lower tier plans address community needs in conformity with the broad strategic framework of the upper tier plan, but at a local, detailed level. In this way, both upper and lower tier plans can have a long-term horizon, but at different levels of detail, and different geographic perspectives. The coordination of upper and lower tier plans provides a unique opportunity for the development of a strategic and multidisciplinary approach to land use planning.

Each level, both upper and lower tier, needs to integrate water management components into the municipal planning process. Watershed and subwatershed plans contain those aquatic resource issues that are important for the well-being of not only the environment but also the particular planning area in general. This integration provides policies and directions for the protection of aquatic resources, as well as providing a better information base for traditional planning decisions. In this way, municipal residents are more likely to enjoy both a healthy environment and sound social and economic development.

FIGURE 1
WATERSHED AND
MUNICIPAL PLANNING



3.0 POLICIES ADDRESSING WATER RESOURCE MANAGEMENT IN THE MUNICIPAL LAND USE PLANNING PROCESS

In the municipal land use planning process, the key planning document is the official plan. The official plan sets the municipality's goals and objectives for land uses within its jurisdiction. The official plan also provides specific policy direction which guides land development in accordance with provincial policies and guidelines as provided for under the *Planning Act*. *It is an important mechanism, therefore, that can be used to promote and implement the objectives of water and related resource planning. If this is done, the process can be considered to be integrated land use/ water resource municipal planning.*

The following is an outline of the general types of policies and approaches which should be considered by a municipality in formulating its Official Plan.

3.1 General Policies

P Recognition of and Commitment to the Importance of Water Resources

The policies of the official plan should clearly recognize the importance of the quality of surface water and related resources to the environmental, social and economic well being of the municipality.

The policies should reflect the municipality's commitment to maintaining the quality and quantity of water and related resources to maintain the integrity and well-being of the aquatic ecosystem. Where possible, efforts should be made to enhance these waters on a sustainable basis. The municipality should ensure that such matters are considered in any decisions, policy directions proposed changes in land use.

Municipalities are encouraged to establish goals, objectives and principles for water and related resource planning and management. These goals and objectives will provide an important context for the policies of the official plan. They should be complementary to provincial goals and objectives.

The following wording is an example of the kinds of objectives that could be included in the official plan:

"It is the policy of Council to:

- Ensure that land use planning contributes to the protection, maintenance, and enhancement of water and related resources and aquatic ecosystems on an integrated watershed management basis*
- Maintain and where possible, enhance surface and ground water resources in sufficient quality and quantity to meet existing and future uses on a sustainable basis*

- *Ensure that all land use decisions promote water conservation and support the efficient use of water resources on a watershed and subwatershed basis*
- *Protect human life and property from water related hazards such as flooding and erosion."*

3.2 Specific Policies

P Commitment to Integrated and Coordinated Water Resource Management

Municipalities should support and seek the fullest possible participation in the water and related resource management initiatives of other agencies in order to develop comprehensive integrated water and related resource planning programs.

Where a watershed plan has been prepared, for example, by a conservation authority, in consultation or partnership with the Ministries of Environment and Energy, Natural Resources and the municipality, the municipality should incorporate relevant parts of the watershed management plan into the official plan. When a watershed plan is in preparation but is not yet finalized, the municipality should state its intention to re-evaluate and if necessary, amend its official plan to incorporate new water resource management policies contained in the watershed plan.

In addition, municipalities should encourage and support programs to protect, clean up, and rehabilitate natural water-related ecosystems in cooperation with appropriate agencies, e.g., Remedial Action Plans, Habitat Canada, Community Fisheries Improvement Program, Community Wildlife Improvement Program.

As well, municipalities are encouraged to consult with MNR, MOEE and local conservation authorities to identify specific water management initiatives that may have relevance to municipal planning, prior to the preparation of their official plan or major official plan amendments.

P Maintenance of Natural Watercourses

The official plan should contain provisions to protect and maintain all lakes and streams as natural distinct ecosystems. In this regard, lands within the area of influence should, wherever possible, be retained in or rehabilitated to a natural vegetated riparian state. Modification to stream or lake beds should be prohibited or limited by strict conditions.

Specific building setbacks for riparian lands should be developed in consultation with the Ministry of Natural Resources and the local conservation authority. Streams, lakes and associated setback areas, as components necessary to the integrity of natural systems, should be placed in appropriate restrictive designations and zones in the official plan and comprehensive zoning by-law. These provisions will have the effect of prohibiting the

placement or removal of fill, buildings and structures, except those structures required for erosion and sedimentation control, and conservation purposes.

Any major deviation from this principle should be considered only in the context of a broad watershed or subwatershed analysis or a lake and shoreland management plan.

P Control of Discharges to Surface Water and Ground Water

Municipalities should make every effort to prevent or avoid, if possible, the discharge of untreated municipal sanitary sewage and contaminated stormwater runoff and land drainage to receiving water bodies. The official plan should recognize that it is unacceptable for the municipality to route urban stormwater/drainage through concrete channels. In other words, municipal land drainage systems should be maintained in their natural conditions, and underground sewerage should be minimized. If these are required in isolated cases for the protection of life or property, however, they must comply with provincial requirements. Accordingly, municipalities should adopt by-laws to control waste discharges to municipal sewers, such as the Model Sewer Use By-law. They should also advocate and encourage stormwater best management practices, which include management techniques.

P Enhancement of Water Conservation Practices

Municipalities should adopt policies to maintain and enhance water and related resources by promoting water conservation measures, developing water budgets for ground water aquifers, and should encourage innovative municipal standards such as the use of cisterns and water efficient plumbing fixtures.

P Water Quality/Quantity Targets

Policies should be included in the official plan by which the municipality requires that all proposed changes in land use address potential impacts on the quality and quantity of water and related resources by:

- maintaining or enhancing the natural hydrological characteristics including the baseflow of watercourses
- maintaining storage levels in lakes during periods of minimum baseflow, where appropriate, for low flow augmentation
- requiring the development and monitoring of water budgets for ground water aquifers
- protecting or enhancing fish and wildlife habitat

- maintaining or enhancing water quality as measured by indicators such as temperature, turbidity, bacterial counts, oxygen levels and nutrients
- prohibiting, and if not possible, minimizing alterations to natural drainage systems by maximizing the retention of natural vegetation and maintaining vegetative buffer strips along watercourses
- prohibiting, and if not possible, minimizing sediments entering a stream or lake to the greatest degree practicable
- ensuring that no persons or property are placed at increased risk due to increased flooding or erosion

These targets should be met on a watershed, subwatershed and site-specific basis.

The municipality should assess compliance of any water conservation practices and land use change to the above targets in consultation with the Ministries of Environment and Energy, Natural Resources and the local conservation authority.

P Identification and Protection of Significant Hydrogeological Areas

Where hydrogeologic areas exist, such as recharge/discharge areas and headwaters, that are known to be susceptible to contamination, the official plan should include policies to afford them protection from potential sources of contamination. Municipalities, in consultation with the Ministry of Environment and Energy and Health Units, should control land use activities and servicing arrangements so as to reflect the location and extent of areas with differing capacities to sustain long-term operations of on-site sewage systems without ground water or surface water impairment, or risk to public health.

With respect to recharge areas, special precautions are required to ensure that a change in land use enhances or does not impair the recharge capacity of the site or the quality of water travelling to water courses or ground water aquifers which may be an existing or future source of municipal water supply.

In unserviced areas, site assessments are required for proposed development to determine if additional development can be supported on an appropriate scale and density to avoid adverse environmental impact or public health risks. Specifically, site assessments can determine whether an adequate supply of potable water is available, and confirm the suitability of the area for on-site sewage systems. If it is unsuitable or the area is particularly sensitive, e.g., Oak Ridges Moraine, consideration should be given to communal septic systems, lagoons, or small sewage treatment plants. The Ministry of Environment and Energy can be consulted for a number of guidelines on servicing.

P Protection of Inland Lakes

The official plan should include policies for developing shoreland management plans, which include setting development capacities for inland lakes. These should be developed in consultation with municipalities and agencies adjacent to the same lake system and the affected public. The intent of these policies is to prevent excessive nutrient enrichment and dissolved oxygen depletion in these lakes as a result of the cumulative impacts of shoreland development.

In setting the acceptable level of development, the municipality will account for such factors as traditional lake uses, fisheries management objectives, recreation, navigation, water quality, the number of approved but vacant lots, the number of existing lots (including lots of record), vegetative cover, shoreland modifications, flood and erosion control.

After establishing a sustainable level of development, the municipality will state in its official plan policies the maximum permissible number of lots allowed on each lake within a watershed and the distribution of lots among municipalities sharing the lake system shoreland.

P Protection of Human Life and Property from Water-related Hazards

Policies should be included in the Official Plan to prohibit land uses which threaten human life and property due to the presence of water related hazards including:

- flood-prone lands•
- soils prone to water related slope instability•
- unstable soils•

The Flood Plain Planning Policy Statement issued under Section 3 of the *Planning Act* states that all development must "have regard for" flood damage in addressing floodplains.

The identification of other hazardous features and the development of appropriate land use policies should be developed in consultation with the Ministry of Natural Resources and the local conservation authority, where these exist.

4.0 IMPLEMENTATION

The official plan should identify implementation schedules and mechanisms, that is, how and when the policies in the official plan will be implemented. This includes, for example, identifying when specific water and related resource planning and management tools, like subwatershed plans and stormwater management plans, will be needed. This is to ensure that linkages between watershed and land use planning are established at the outset. These policies should be implemented through zoning by-laws.

4.1 Strategy

A three-part implementation strategy is recommended:

1. Watershed Plan

Where a watershed plan has been prepared, for example, by a conservation authority, in consultation with the Ministry of Environment and Energy, the Ministry of Natural Resources, and the municipality, all land use planning decisions should be carried out in accordance with the recommendations of the watershed management plan. An official plan can reflect the broad directions, goals and targets established in the watershed management plan.

2. Subwatershed Plan

For large scale and/or multi-ownership proposals normally requiring a major official plan amendment, a subwatershed plan would be very beneficial to all concerned. This should be developed and approved by the municipality and/or the conservation authority, or the Ministry of Natural Resources and Ministry of Environment and Energy where conservation authorities do not exist. The plan demonstrates how water and related resources will be managed to meet surface and ground water quality and quantity targets identified in this document in section 3.2 Specific Policies, Water Quality/Quantity Targets. The plan must examine the entire subwatershed's goals, objectives, principles and policies, and not just portions to be occupied by a development proposal. This will require cooperation with other municipal jurisdictions outside the individual area municipal boundary.

An alternative approach may be to define distinct subwatershed units on a separate schedule to the official plan, and specify the timing of studies in support of the development of a subwatershed plan. If possible, subwatershed plans and the official plan should be tied administratively in their development. The official plan should recognize the aims and contributions of watershed and subwatershed planning. This parallelism will help streamline the development approval process. *Where a watershed plan exists, the subwatershed plan will conform to the goals and objectives of the watershed plan.*

3. Site Management Plans

A variety of site-specific plans are prepared in support of draft approval of plans of subdivision, and other development applications which require the use of site plan control. Familiar examples are stormwater management plans, flood control plans, sediment and erosion control plans, and plans for servicing of roads, water and sewers. These plans specify how requisite servicing and environmental design/management needs will be addressed in a manner satisfactory to the local municipality, conservation authority, and where appropriate, provincial agencies.

When site management plans are formulated in accordance with principles and targets of the subwatershed plan, the site plans are more effective, the objectives of the subwatershed plan have practical application, and the environment generally benefits. Where this has occurred, the review

agencies may consider it unnecessary to review individual site plans, because those plans have been developed according to criteria identified in the subwatershed plan. Approvals for the construction and operation of facilities identified in these plans, however, may still be necessary under specific legislation administered by provincial ministries.

When specifications for facility design, performance and location are established in a subwatershed plan, it has been shown that both timeframes and expenditures are reduced for completing detailed field studies, design work and environmental assessments for site management facilities. The advantage of this overview of site management in the subwatershed plan is not only a set of criteria for site planners to follow, but also consideration of site management on a systemic basis. Facilities are not considered on their own but as part of a range of optional facilities and locations, for example, for stormwater management, or for flood and erosion control measures that take into account downstream considerations.

It is in the interests of site planners at the local level to consider site management on a systemic basis and to pass pertinent information from their experience on to those developing the subwatershed plan. In this way, the local site planners are more likely to have workable, proven procedures and criteria included in the subwatershed plan as guides for future projects.

Where no subwatershed plan or watershed plan exists, it is difficult to assess overall cumulative impacts of land use on water and related resources. In these situations, measures should be taken to minimize, to the extent possible or practical, the impacts on water and related resources, as indicated here in 3.2 Specific Policies, in a manner satisfactory to MNR and the local conservation authority. For small-scale development proposals normally processed as severances, site planning and spot zoning by-law amendments, water resources management will be limited to the identification of specific stormwater, erosion and sedimentation control design and construction measures.

In all situations, local by-laws can be used to address routine site management requirements, e.g., topsoil protection, urban forests, sensitive terrestrial habitats.

CONCLUSION

This document addresses the most local level of a continuum of water resource planning and management on the basis of watersheds, subwatersheds, and geographical units of each. It stresses the most practical way of ensuring that aquatic resources are protected and considered in planning decisions in any size municipality, whatever its share of the watershed or subwatershed. This, of course, is to explicitly build watershed/subwatershed goals and information into official plans.

Local community municipal and resources planners are encouraged to use this document in conjunction with the subwatershed planning and watershed planning interim guidance documents identified in section 2 of this document. They represent three levels of guidance that correspond to the three levels of watershed issues on a continuum of planning to protect aquatic resources.

It is important to emphasize again that the land use planning process and the water resources planning process should, ideally, mutually influence each other. This should occur both at developmental as well as administrative interfaces. In other words, information in a watershed or subwatershed plan would provide a very useful basis for provisions in an official plan. Similarly, when official plan amendments are made, corresponding revisions can be accommodated in a watershed or subwatershed plan.

Local planners can take advantage of the recommendations or approaches found in completed watershed/subwatershed plans or studies. Further information or assistance can be obtained from any local office of the Ministry of Natural Resources, the Ministry of Environment and Energy or the Ministry of Municipal Affairs.