

## *Surface Water and Groundwater Planning*

### *Introduction*

The purpose of this section is to:

- Describe the purpose of surface water and groundwater planning
- Identify the agencies and organizations that do surface water and groundwater planning within the City of Scandia, and
- Summarize the goals and policies of recent plans and studies regarding surface water and groundwater resources in the City of Scandia.

The purpose of water planning is to protect and maintain or improve the quality of surface water and groundwater resources. It should be noted that there is a great deal of overlap in planning for surface water resources and planning for groundwater resources. While the planning efforts for each are described here separately, in reality, surface water planning efforts usually touch on groundwater issues and groundwater planning efforts often include issues relating to the interaction between surface water and groundwater.

Within the City of Scandia, surface water planning is done by several entities. Minnesota Statute 103D enables the creation of watershed districts. Watershed districts are local units of government that protect surface water resources through the adoption and implementation of local water management plans. Because watersheds do not follow political boundaries, there are three watershed districts within the City of Scandia: the Carnelian Marine-St. Croix Watershed District (CMSCWD), the Comfort Lake-Forest Lake Watershed District (CLFLWD), and the Rice Creek Watershed District (RCWD). Map 3 - *Watershed Boundaries and Watershed District Boundaries*, shows the boundaries of each watershed district within the City of Scandia (page 16). Every 10 years, each watershed district is required to prepare plans to:

- Protect, preserve, and use natural surface and groundwater storage and retention systems
- Minimize public capital expenditures needed to correct flooding and water quality problems
- Identify and plan for means to effectively protect and improve surface and groundwater quality
- Establish more uniform local policies and official controls for surface and groundwater management
- Prevent erosion of soil into surface water systems
- Promote groundwater recharge
- Protect and enhance fish and wildlife habitat and water recreational facilities; and
- Secure the other benefits associated with the proper management of surface and groundwater.

After plan approval by the Board of Water and Soil Resources, the watershed district formally adopts the plan and requires each city or township within its boundaries to create and implement its own local water management plan consistent with the watershed district's plan. As a result, the City of Scandia is required to develop its own local water management plan that is consistent with approved watershed district plans. The CMSCWD adopted their most

## *Surface Water and Groundwater Planning • Current Conditions*

recent plan in 2000, the CLFLWD adopted its most recent plan in 2001, and the RCWD adopted its most recent plan in 1997 and amended in 2000. After developing a local water management plan, a city or township may then also develop or update local ordinances in order to implement or enforce portions of its plan.

Groundwater planning is also completed by several entities within the City of Scandia. Minnesota Statute 103D allows watershed districts to include groundwater resources in their local water management plans, while Minnesota Statute 103B provides counties with the authority to complete groundwater plans. County Groundwater Plans are approved by the Board of Water and Soil Resources. Washington County's most recent Groundwater Plan was completed and approved in 2003. Washington County's 2003 Plan focuses on protecting groundwater resources through coordinated intergovernmental efforts. Priority groundwater issues for Washington County cities like Scandia include proper Individual Sewage Treatment System installation and maintenance and proper installation, maintenance, and sealing of residential wells.

The plans, studies, and ordinances summarized in this report include:

- Carnelian Marine-St. Croix Watershed District, Watershed Management Plan, 2000
- Comfort Lake-Forest Lake Watershed District, Watershed Management Plan, 2001, revised 2008
- Rice Creek Watershed District, Watershed Management Plan, 1997 (amended 2000)
- City of Scandia, DRAFT Shoreland Management Regulations, 2007
- Washington County Groundwater Plan, 2003-2013
- Washington County Model Groundwater Rules, 2004
- Integrating Groundwater and Surface Water Management – Northern Washington County, 2003

## *Surface Water Planning*

This section briefly describes the most recent local water management plan for each of the three watershed districts within the City of Scandia, followed by a comparison of the goals, objectives, and policies of each plan. The City of Scandia's draft Shoreland Management Regulations are also summarized.

### **City of Scandia, Shoreland Management Regulations, 2007**

When a new city is incorporated, it is required to adopt its own ordinances for which it had previously relied on the County. To that end, the City of Scandia adopted a new Shoreland Management Ordinance, as chapter 5 of the City of Scandia's Development Code. The purpose of the shoreland management regulations is to:

- Designate suitable land use districts for each body of public water
- Regulate the placement of sanitary and waste treatment facilities on lots
- Regulate the area of a lot and the length of water frontage suitable for building sites
- Regulate the alteration of shorelands on public waters
- Regulate alterations of the natural vegetation and the natural topography along shorelands
- Conserve natural resources and maintain a high standard of environmental quality
- Preserve and enhance the quality of surface water
- Preserve the economic and natural environmental values of shorelands

## Surface Water and Groundwater Planning • Current Conditions

- Provide for the utilization of water and related land resources
- Maintain water quality, reduce flooding and erosion, and provide food and habitat for wildlife.

Because the city is currently updating its comprehensive plan and two of the watershed districts within the city are updating their rules, this draft ordinance is considered an “interim” measure. After the comprehensive plan is adopted, the city is expected to complete overall update to its Development Code.

### **Carnelian Marine-St. Croix Watershed District, Watershed Management Plan, 2000**

The Carnelian Marine-St. Croix Watershed District’s (CMSCWD) most recent watershed management plan was created in 2000. The plan contains the goals, policies and management plans of the CMSCWD and guides the watershed’s activities until 2010. Seventy-eight percent of the city of Scandia falls within the CMSCWD. Electronic copies of the plan are available upon request. Please contact John Bower, CMSCWD President:

Email: CarMarWD@aol.com  
Phone: (651) 430-2793

The 2000 CMSCWD Watershed Management Plan contains objectives and policies for 12 major issue areas:

- Water Quality
- Lake Management
- Groundwater
- Wetlands
- Streams
- Erosion & Sedimentation Control
- Stormwater Runoff
- Flooding
- Shoreland Management
- Fish & Wildlife
- Parks, Natural Corridors & Open Space
- Aquatic Vegetation Management

### **Comfort Lake-Forest Lake Watershed District, Watershed Management Plan, 2001**

The Comfort Lake-Forest Lake Watershed District’s (CLFLWD) most recent watershed management plan was created in 2001 with revisions adopted and approved by BWSR in August 2008. The plan contains the goals, objectives, and actions of the CLFLWD and guides the watershed’s activities until 2011. An electronic version of the plan can be found at: [http://www.clflwd.org/docs/watershed\\_management\\_plan.pdf](http://www.clflwd.org/docs/watershed_management_plan.pdf)

The plan has 7 core goal areas:

- Water Management
- Lakes
- Streams
- Wetlands
- Natural Resources
- Biotic Diversity, and
- Interagency and Public Coordination

CLFLWD is in the final stages of drafting rules and standards to support a permitting program for the following activities: stormwater management; erosion control; shoreline and streambank alterations; watercourse and basin crossings; floodplain and drainage alterations; and wetland management under the state Wetland Control Act. After adoption of the rules

## Surface Water and Groundwater Planning • Current Conditions

and standards by CLFLWD, Scandia will be required to update its ordinances to come into consistency with the new rules and standards. In addition, CLFLWD is in the final stages of developing a Total Maximum Daily Load (TMDL) plan for Bone lake because it is listed by the MPCA as impaired for excessive nutrients (phosphorus). Scandia has been participating in the advisory committee to the TMDL process and will be required to implement load allocations resulting from the TMDL.

### Rice Creek Watershed District, Watershed Management Plan, 1997 (amended 2000)

The Rice Creek Watershed District's (RCWD) most recent watershed management plan was created in 2001. The plan contains the objectives, policies, and management strategies of the RCWD and guides the watershed's activities until 2007. Only 0.2% of the city of Scandia falls within the RCWD. An electronic version of the plan can be found at:

[http://www.ricecreek.org/content/documents/planning/Watershed\\_Management\\_Plan.pdf](http://www.ricecreek.org/content/documents/planning/Watershed_Management_Plan.pdf)

The RCWD's 1997 Watershed Management Plan has 6 objectives:

- Minimize public expenditure to control runoff
- Improve water quality
- Prevent flooding and erosion
- Promote groundwater recharge
- Protect and enhance fish and wildlife habitat and recreation
- Provide for the transition of water management to local units

### Comparison of Plan Goals, Objectives, and Policies

Table 7 - *Comparison of relevant surface water goals, objectives, and policies*, summarizes the goals, objectives, and policies included in the CMSCWD, CLFLWD, and RCWD local water management plans. Only those items that have some bearing on activities related to land use were included in the table.

**Table 7 - Comparison of relevant surface water goals, objectives, and policies from CMSCWD, CLFLWD, and RCWD local water management plans.**

GOALS, OBJECTIVES, & POLICIES	CMSCWD	CLFLWD	RCWD
<b>General Water Quality</b>			
1. District shall exercise review and permitting authority over all construction activities	✓		
2. District will develop rules and implement permit program		✓	
3. District shall require local government units to adopt ordinances controlling the access of livestock to public waters and ditches	✓		
4. District will promote the use of BMPs to improve the quality of water resources	✓		
5. District will require that all local water management plans adopt the water quality goals and design standards in the plan	✓		
6. District will require local units of government to adopt ordinance that control nuisance waste and debris	✓		

## *Surface Water and Groundwater Planning • Current Conditions*

**Table 7 - Comparison of relevant surface water goals, objectives, and policies from CMSCWD, CLFLWD, and RCWD local water management plans.**

<b>GOALS, OBJECTIVES, &amp; POLICIES</b>	<b>CMSCWD</b>	<b>CLFLWD</b>	<b>RCWD</b>
7. District will use performance based permit requirements to restrict nutrient discharges	✓		
8. District will promote sustainable development	✓		
9. District will require that new developments implement one of three water quality BMPs			✓
10. District requires notification of development activities where hazardous waste is stored or handled			✓
<b>Lake Water Quality</b>			
1. District will require that its stormwater discharge nutrient concentrations be met by new developments	✓		
<b>Stream Water Quality</b>			
1. District will require 100-foot buffer of native vegetation surrounding streams on new developments	✓		
2. District will require cities to establish a minimum 100-foot buffer along streams to be acquired as part of land dedication upon development	✓		
3. District will encourage the maintenance of riparian buffers along waterways		✓	
<b>Stormwater Runoff</b>			
1. District will require natural infiltration of runoff, where practical	✓		✓
2. District will require that peak stormwater discharge from a development shall not exceed the undeveloped, pre-settlement discharge volume and rate	✓		
3. District shall establish impervious surface limits on new development	✓		
4. District will establish standards for stormwater runoff quality and quantity for new developments	✓		
5. District will require that runoff rates from development sites be controlled in conformance with district requirements			✓
<b>Flooding</b>			
1. District will require LGUs to adopt floodplain ordinances that meet state requirements	✓		✓
<b>Groundwater</b>			
1. District will exercise review and permitting authority over all developments within 1,000 feet of an identified groundwater recharge area	✓		
2. District will require all developments which result in ½ acre of impervious surfaces to implement groundwater recharge and infiltration BMPs	✓		

## Surface Water and Groundwater Planning • Current Conditions

**Table 7 - Comparison of relevant surface water goals, objectives, and policies from CMSCWD, CLFLWD, and RCWD local water management plans.**

GOALS, OBJECTIVES, & POLICIES	CMSCWD	CLFLWD	RCWD
3. District will require LGUs to include land use development guidelines for natural groundwater recharge through infiltration of rainfall and for protection of groundwater quality through the control of land use and development	✓		
4. District will work with LGUs to modify land use and zoning plans to protect groundwater and groundwater recharge areas	✓		
5. District will not allow mining within 3 feet of the highest indicated groundwater table	✓		
6. District will prohibit the construction of impervious surfaces within floodplain recharge areas except for road constructions			✓
7. Control developments with the potential to contaminate development			✓
8. Preserve groundwater recharge areas	✓	✓	✓

### Groundwater Planning

This section of the background report briefly describes the most recent plans and studies relating to groundwater planning in the City of Scandia, followed by a comparison of the goals and objectives of each plan or study.

#### Washington County Groundwater Plan, 2003-2013

The Washington County Groundwater Plan provides a county-wide framework for the protection and conservation of groundwater resources. The current plan was approved in 2003 and guides the protection of groundwater resources in the county until 2013. An electronic version of the plan can be found at: [http://www.co.washington.mn.us/client\\_files/documents/phe/ENV//ENV-2003GroundwaterPlan.pdf](http://www.co.washington.mn.us/client_files/documents/phe/ENV//ENV-2003GroundwaterPlan.pdf)

The overall goal of the Washington County Groundwater Plan is to protect the economic and environmental values groundwater provides through coordinated, intergovernmental efforts in research and assessment, policies, political influence, regulation, education, and consultation and technical assistance.

The plan addresses two major issues: groundwater quality and groundwater quantity. The plan identifies 7 major issue areas relating to groundwater quality and groundwater quantity:

- Non-agricultural land use
- Agriculture, turf, and animal waste management
- Individual Sewage Treatment Systems (ISTS)
- Wellhead protection and well management
- Groundwater supply
- Groundwater and surface water interaction
- Hazardous materials management and transportation

## *Surface Water and Groundwater Planning • Current Conditions*

### **Washington County Model Groundwater Rules, 2004**

In 2004, the Washington County Water Consortium developed model groundwater rules for future adoption by the water management organizations (WMOs) located within the County. The model rules address groundwater appropriations, stormwater runoff volume control, groundwater quality, the protection of groundwater dependent natural resources.

The purpose of the model rules is to encourage water management organizations to adopt groundwater standards. As local units of government develop local water management plans they will also have to consider the adoption of similar standards in order to be consistent with watershed management plans. The overall goal is for groundwater protection to become an integral part of future land use decisions at both the watershed district level as well as the municipal level.

An electronic version of the model rules can be found at: [http://www.co.washington.mn.us/client\\_files/documents/phe/ENV//ENV-WDReport.pdf](http://www.co.washington.mn.us/client_files/documents/phe/ENV//ENV-WDReport.pdf)

### **Integrating Groundwater and Surface Water Management, Northern Washington County, 2003**

The purpose of this study by Washington County is to provide local decision-makers with planning level information on groundwater resources. It provides data to support management strategies and policies protecting lakes, wetlands, streams, and water supplies dependent on groundwater resources. The study area for this report includes all areas of Washington County north of State Highway 36. The study included:

- An educational component aimed at educating and informing local water management groups
- A hydrologic monitoring plan
- An assessment of groundwater resources; lakes, recharge and discharge areas, and groundwater-dependent resources were inventoried and classified
- A strategy for integrating groundwater and surface water management, including policies and recommendations for protecting drinking water, maintaining recharge, and managing high water levels
- A feasibility study for managing excess surface water; Valley Branch Watershed District investigated alternatives for retention and infiltration of water in the upper watershed of the Sunnybrook Lake area.

An electronic version of the study can be found at: [http://www.co.washington.mn.us/client\\_files/documents/phe/ENV//ENV-GroundSurfaceWaterMgmt.pdf](http://www.co.washington.mn.us/client_files/documents/phe/ENV//ENV-GroundSurfaceWaterMgmt.pdf)

The strategy for integrating groundwater and surface water management addresses four issues relating to groundwater:

- Groundwater recharge and discharge areas
- Areas susceptible to high water levels
- Groundwater-surface water interaction and groundwater-dependent resources
- Education

# Surface Water and Groundwater Planning • Current Conditions

## Comparison of Plan Goals, Objectives, and Policies

Table 8 - Comparison of relevant groundwater goals, objectives, and policies, summarizes the goals, objectives, and policies included in the 2003 Washington County Groundwater Plan, 2003 Groundwater Study and the 2004 Washington County Model Groundwater Rules local water management plans. Only those items that have some bearing on activities related to land use were included in the table.

**Table 8 - Comparison of relevant groundwater goals, objectives, and policies from groundwater plans and studies.**

GOALS, OBJECTIVES, & POLICIES	2003 GMP	2003 GW STUDY	2004 GW RULES
<b>Non-Agricultural Land Use</b>			
1. Assess the potential impacts to groundwater resources from different land uses	✓		
2. Provide cities and townships with types of land uses that may not be suitable in unsewered areas	✓		
3. Establish groundwater protection as a goal when making land use decisions and as part of the comprehensive planning process	✓		✓
4. Enforce groundwater-related provisions in the County and local mining ordinances	✓		
<b>Agriculture, Turf, Animal Waste Management</b>			
1. Provide model zoning language and mitigation strategies for areas shown to be impacted by fertilizer, pesticides, or animal waste	✓		
<b>Individual Sewage Treatment Systems</b>			
1. Reduce groundwater contamination related to on-site waste-water treatment systems	✓		
2. Revise County ordinance to require property owners to have a certificate of inspection, to upgrade or replace non-conforming systems, and identify and properly close abandoned ISTS before property transfer	✓		
3. Require proper design, building, operation and maintenance of effective septic systems		✓	
<b>Aquifer Protection</b>			
1. Require reporting of all abandoned wells to prevent contamination of groundwater	✓		
2. Provide financial incentive for identifying and sealing abandoned wells	✓		
3. Maintain existing infiltration volumes whenever any construction, reconstruction, building activity or land alteration occurs		✓	
4. Restrict prohibited land uses that generate, use or store dangerous pollutants in critical recharge areas		✓	

## *Surface Water and Groundwater Planning • Current Conditions*

**Table 8 - Comparison of relevant groundwater goals, objectives, and policies from groundwater plans and studies.**

GOALS, OBJECTIVES, & POLICIES	2003 GMP	2003 GW STUDY	2004 GW RULES
<b>Groundwater Surface Water Interaction</b>			
1. Develop land use regulations to protect groundwater resources based on completed studies and rankings of groundwater recharge areas	✓		✓
2. For all new developments and re-developments, adopt rules controlling stormwater runoff volume and establish performance standards	✓	✓	✓
3. Require all new development and re-development to offset reduced infiltration that results from increased imperviousness		✓	
<b>Hazardous Materials Management and Transportation</b>			
1. Help communities develop groundwater protection policies related to the siting and permitting of new commercial and industrial development	✓		✓
2. Assist communities with groundwater monitoring plan or groundwater protection plan requirements	✓	✓	
3. Require a groundwater monitoring plan or a groundwater protection plan as part of a permit application for businesses that store, use, or transport hazardous materials and for properties formerly used as a waste disposal site or waste transfer facility	✓		