

2008 – 2013 City of Marine on St. Croix Surface Water Management Plan

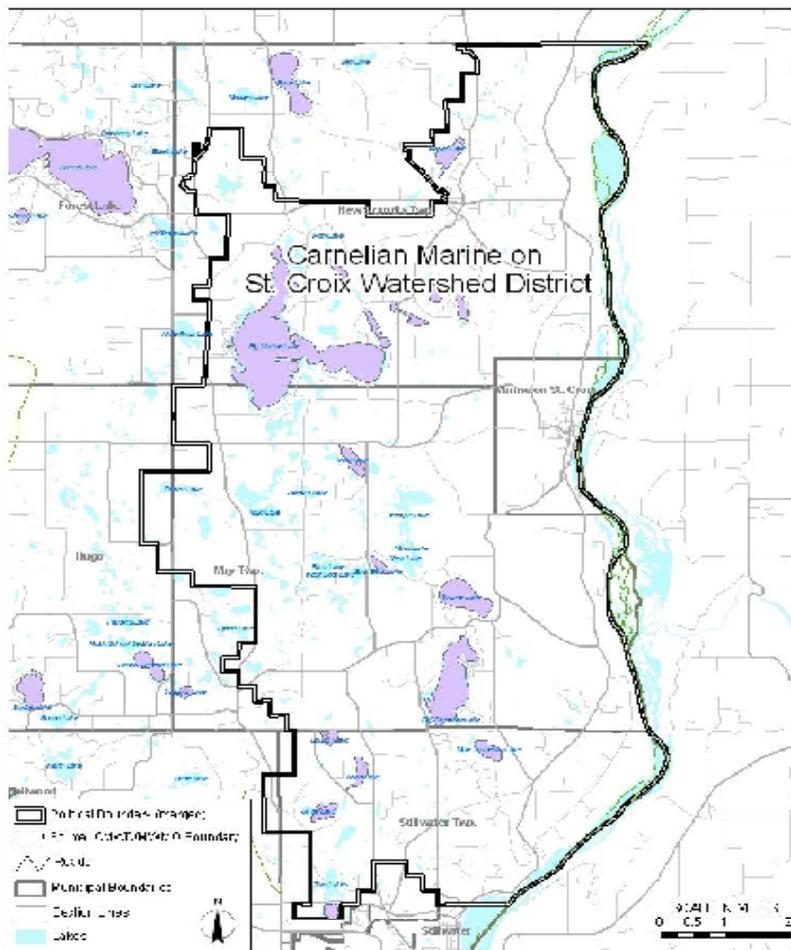
Purpose

The purpose of this surface water management plan is to outline the ordinances, plans and goals developed by the City of Marine on St. Croix regarding surface water management. The City strongly supports the Metropolitan Council's stated goal that the "quality of water leaving the metropolitan area is as good as the water quality entering the metropolitan area." As is noted elsewhere in the City's comprehensive plan, our citizens are appreciative of the natural beauty of the area around Marine on St. Croix, with many of the residents moving to the Marine on St. Croix area because of their appreciation of the natural environment. Our citizens recognize the importance of being good stewards of the natural resources of the area, volunteering many hours toward such activities as buckthorn removal, litter clean-up on the St. Croix River and stream monitoring. The City is committed to the goal of no adverse impact on area water resources and will continue to work collaboratively with county government, state and federal agencies, watershed management organizations and the public to ensure our surface water management policies are consistent with our goals.

The City initially anticipated its surface water management plan would be developed in cooperation with the new Carnelian-Marine-St. Croix Watershed District (CMSCWD). It was believed this organization would have the technical resources to work with the City to ensure the surface water management plan met the required criteria of the Metropolitan Council. The City believed the Metropolitan Council would have many communities in a similar situation and would want to avoid requiring Cities to use limited resources to develop surface water management plans that might duplicate surface water management sections in the Management Plan of a new watershed district.

The City of Marine on St. Croix has developed its 5 Year Surface Water Management Plan using information and data available from the Marine Water Management Organization (MWMO) draft management plan, as well information from other studies and local organizations. The City expects to work with the new CMSCWD as its Management Plan is developed, and will identify those surface water management issues where control is best retained by the City, and identify those issues where the most effective and cost-efficient approach will be to have the watershed district aid the City in management.

Water Resource Management Agreements



Map 1 CMSCWD Map

The City of Marine on St. Croix was a member of the Marine Water Management Organization (MWMO) until that organization was disbanded in anticipation of the newly formed Carnelian-Marine-St. Croix Water District (CMSCWD). The new watershed district was created in June, 2007, and will fulfill the watershed planning and management responsibilities of Minnesota Statutes Chapter 103B. The City and Council members have been following the drafting of new rules for the CMSCWD and expect to work cooperatively with the district once this initial organization phase is completed. The City anticipates that over the next year the new watershed district may identify many of the same issues reviewed in this plan, in its Management Plan. The City expects to work cooperatively with the watershed district to avoid duplication of effort and to simplify any processes a land owner will need to follow in his or her attempt to use best practices with regard to surface water issues on private land.

The entire boundary of the City of Marine on St. Croix is within one water management organization, the CMSCWD (see Map xx). This simplifies the process of working with the watershed organization for permitting, education and other activities. Other members of the CMSCWD water district belong to multiple watershed organizations, further complicating their water resource management.

Executive Summary

This Executive Summary outlines key elements of the City of Marine on St. Croix Surface Water Management Plan. The City has recently completed the statutory 10 year review of its 2030 Comprehensive Plan, and has developed this Surface Water Management Plan as part of this process.

History and Plan Requirements

The City of Marine on St. Croix completed an extensive re-working of its Comprehensive Plan in 2000 and recently submitted its 2030 Comprehensive Plan to the Metropolitan Council for approval. In support of the Metropolitan Council's goal of ensuring there is no adverse impact on area water resources, the Metropolitan Council has a new requirement for a Surface Water Management Plan. The City has followed the Surface Water Management Plan requirements as outlined in the Metropolitan Council's Planning Handbook.

Goals and Policies

The City goals and policies were developed by the current City Council. The City had worked with the MWMO prior to its replacement by the CMSCWD, to ensure that City water resource goals were consistent with the watershed goals and policies. The City expects to continue working closely with the new CMSCWD regarding completion of its goals for improving surface water management. The City has only about 285 households, and its ability to financially support water resource improvements is limited. The City expects to partner with organizations such as the CMSCWD, the National Park Service, the Minnesota DNR and Washington County to effectively and efficiently work for improved water quality.

The City Goals for Surface Water Management are presented below:

- Improve Village Center Stormwater Management
- Reduce runoff and improve pre-treatment of runoff from Highway 95 as it travels through the City
- Improve and reduce stormwater runoff from City impervious surfaces

The following is a brief discussion of the three goals and the recommended actions associated with the goal, plus a cost summary for the actions needed to implement the actions.

Goal 1. Improve Village Center Stormwater Management

The City Council has been concerned for a number of years over stormwater runoff entering the Mill Stream within the Village Center, with little or no pre-

treatment. The City recognizes that the stormwater runoff sources include surfaces in the Village Center, as well as Highway 95, which runs through the entire length of the City. The City has a planned upgrade to Judd Street, the main street in the Village Center, which will offer an opportunity to improve stormwater collection and treatment. The City will work with its partners to complete a study on the sources and volume of stormwater and pollutants within the Village Center, and identify improvements to stormwater collection and treatment which can be included as part of the Judd Street upgrade.

Actions include

- work with CMSCWD to identify the partners and scope of a study on stormwater runoff in the City, particularly the Village Center
- as a result of the study, identify and prioritize actions that the City can take to improve stormwater collection and treatment as part of the Judd Street upgrade
- work with the Minnesota Historical Society regarding potential improvements to Judd Street
- dredge Upper Mill Pond and Lower Mill Pond to increase the ability to accept storm runoff.

Costs associated with improving stormwater collection and treatment as part of the Judd Street upgrade will be \$50,000 - \$300,000.

Goal 2. Reduce and improve pre-treatment of runoff from Highway 95 as it passes through the City

One of the largest single sources of nonpoint source pollution in the City is likely due to emissions and runoff from Highway 95. MnDOT expects to complete routine maintenance on the highway in 2010. This will be an opportunity to work with MnDOT to identify and reduce sediment and stormwater runoff. Although the City will not control highway improvements, the City believes that cooperative discussions with MnDOT can result in significant improvement in stormwater collection and pre-treatment.

Actions include

- request MnDOT work with the City and CMSCWD to define and complete a study of nonpoint sources from Highway 95, and the impact of runoff on the wetland and other land surrounding Highway 95
- continue to meet with MnDOT regarding issues associated with Highway 95, including stormwater runoff, encourage MnDOT to use the information from the study to make some stormwater improvements during the scheduled 2010 maintenance
- encourage MnDOT to plan for larger improvements to stormwater collection and pre-treatment during future highway improvements.

Costs associated with this goal of improving stormwater collection and pre-treatment of runoff from Highway 95 will be minimal, as most of the expense will

be the responsibility of MnDOT. Nevertheless, it is expected these improvements could have a very large impact on improved water quality within the City and the watershed.

Goal 3. Improve and reduce stormwater runoff from City impervious surfaces through pre-treatment of runoff from City streets and lot development practices

The City wants to use its limited resources as effectively as possible to improve surface water management. The City already is using many tools to address surface water management, although these have been developed at various times and without any overall surface and water management plan. These tools include lots size restrictions which affect density, open space requirements, maintenance of right-of-ways leading to increased green space, extensive shoreland constraints within the St. Croix National and Scenic Riverway, and many others. The City will work with partners to complete a study of the volumes and sources of runoff, and will direct its resources based on this study. The City expects the study will support a focus on reducing stormwater runoff from City streets. In addition, the City will apply an impervious surface restriction (a restriction is currently found in the St. Croix Riverway zoning districts) to other residential districts within the City.

Actions include

- work with CMSCWD to complete study on water runoff within the City
- determine priority for City projects to improve stormwater runoff
- improve stormwater collection and pretreatment along City streets
- incorporate impervious surface restrictions in all residential zoning districts

Costs associated with the goal to improve and reduce stormwater runoff from City impervious surfaces will be \$10,000 - \$25,000 annually, throughout the scope of this management plan.

Land and Water Resource Inventory

The land and water resource inventory is a summary of information and data available from a variety of resources and studies.

Wetland Management Plan

The City has a significant number of wetland areas and has long had a policy of developing ordinances to protect those wetlands. The City does not allow construction on wetlands. The City retains a large number of vegetation buffers which aid in the health of the wetland areas (Vogel, 1999). The City also has limitations on vegetation removal within its St. Croix River zoning districts, which encompass many of the City's wetland areas. The City requires every property owner who applies for a building permit to develop a previously undeveloped lot

must show the capacity for two individual sewer systems, planning for the potential failure of one of the sites.

The Metropolitan Council requires the City develop a Wetland Management Plan, and the city recognizes it is responsible for wetland management within its boundaries. The City has about 285 households which make up its tax base, and it receives virtually no Local Aid from the state. To complete its wetland management plan, the City will complete a function and value assessment for wetlands. The 2006 Draft Watershed Management Plan of the MWMO included a plan to develop wetland management plans for existing wetlands. This plan was not adopted because the WMO has been replaced with the new watershed district. The CMSCWD will complete a watershed wetlands assessment as part of the process of completing a watershed wetlands management plan. The City will work with the CMSCWD and use the watershed wetlands assessment information as the starting point for the City's wetland management plan. The City expects to complete its wetland management plan within one year after the function and value assessment for the watershed district is completed.

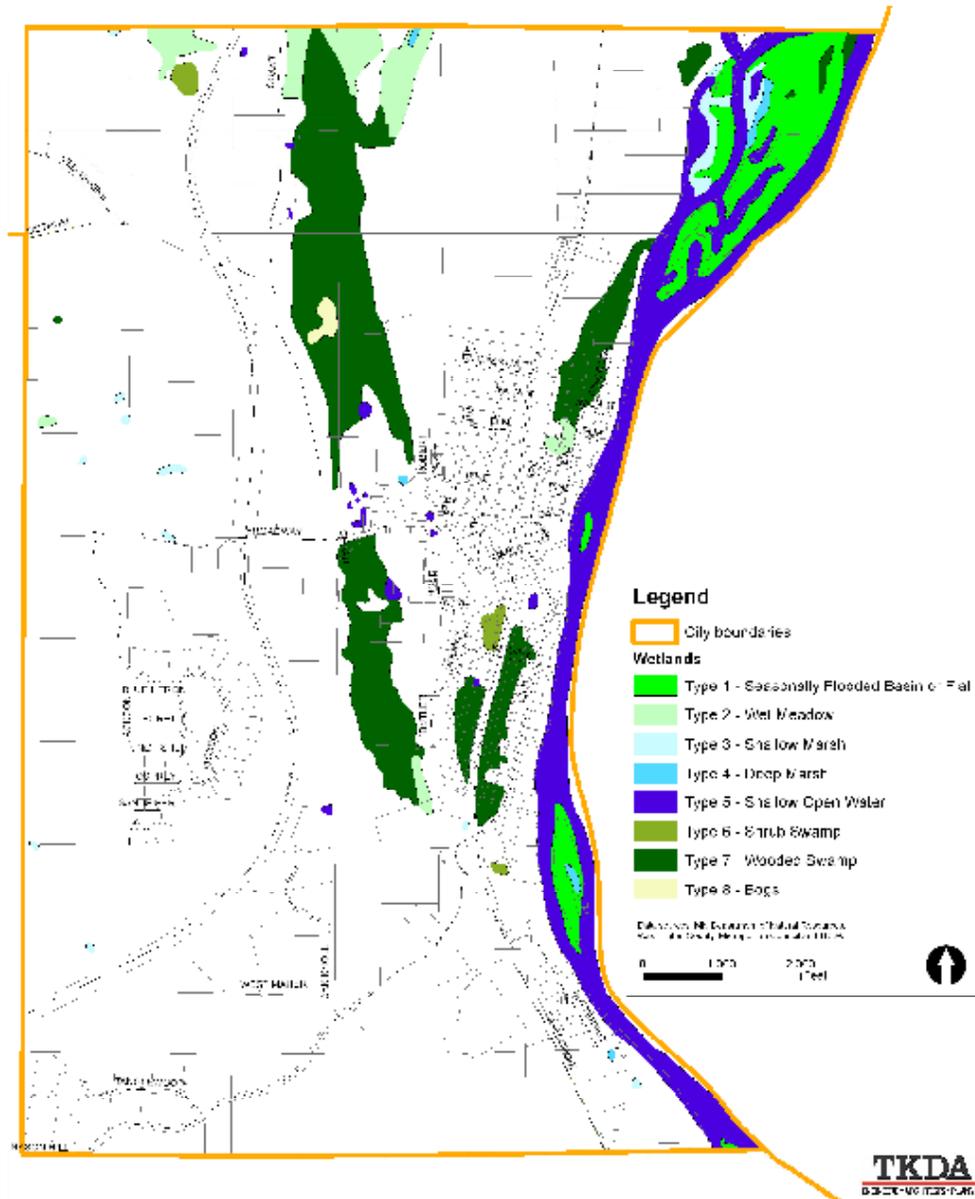
Trout Stream Thermal Pollution Reduction

The City and its citizens have taken a leadership role in protecting the Mill Stream, a trout stream identified by the Minnesota DNR. The city will continue to encourage citizen participation in protection efforts, and will continue to ordinances and education to reduce development along the stream and increase vegetative buffers.

Land and Water Resource Inventory

Wetlands - DRAFT

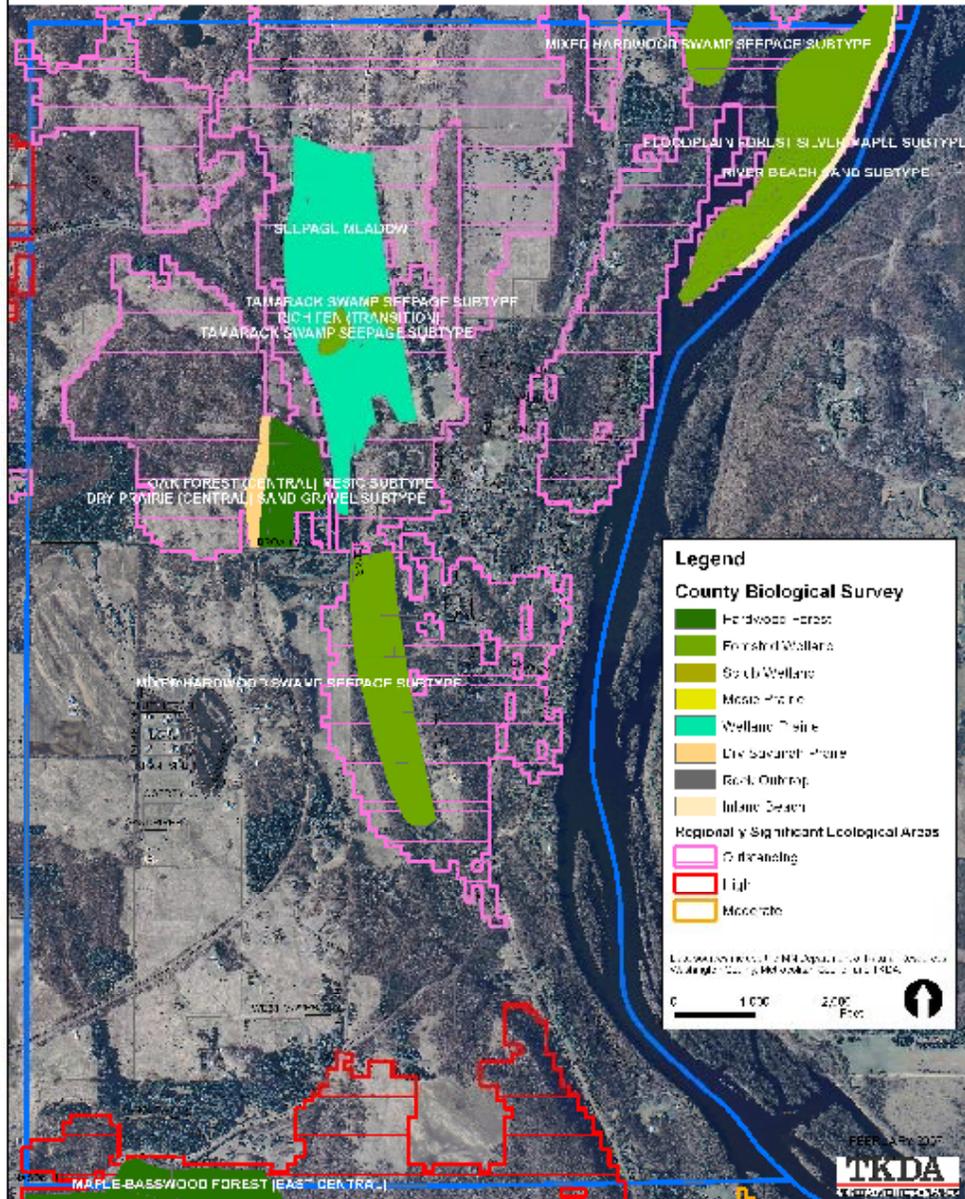
Marine on St. Croix
2030 Comprehensive Plan



Map 2 Marine on St. Croix Wetlands

Significant Natural Resources

Marine on St. Croix 2030 Comprehensive Plan



Map 3 Marine on St. Croix Natural Resources

The City has developed this surface water management plan recognizing that the CMSCWD expects to develop their Management Plan over the next year. The CMSCWD has not yet defined what it will require from local governments in terms of land and water resource information and data, but the City will work with the watershed district to ensure it has the necessary information to meet its statutory responsibilities.

The following inventory information has been largely developed from the MWMO resource inventory, the Mill Stream Natural Resource Inventory and the Marine on St. Croix 2030 Comprehensive Plan.

St. Croix River

The City of Marine on St. Croix has as its eastern boundary the St. Croix River, a water resource identified by Minnesota in 1984 as an Outstanding Resource Value Water. The Lower St. Croix River which includes that portion flowing by the City was designated as a National Wild & Scenic Riverway by Congress in 1972. The river is a significant natural and recreational resource to the City of Marine on St. Croix. The Lower St. Croix has been listed on the MPCA Impaired Waters List per the Federal Clean Water Act Section 303(d).

Streams and Natural Springs

The City is characterized by steep terrain, river terraces and well defined watercourses. The drainage density is medium, an indication of the permeable nature of the soils and the moderate to steep relief of the terrain (MWMO Draft Watershed Management Plan 2006).

The City includes many small, unnamed spring creeks which flow into the St. Croix River, which were the subject of a comprehensive study entitled *St. Croix Spring Creek Stewardship Plan* (Emmons and Olivier Resources, Inc. 2003). An area identified as 'Nine Springs' was significantly restored by the Minnesota DNR and includes some of the many natural springs located within the City.

The City has a trout stream identified by the DNR, the Mill Stream, which runs through the center of the City. As described in the MWMO Draft Watershed Management Plan 2006, the perennial portion of the Mill Stream begins in a large, groundwater-dependent wetland complex north of the City in William O'Brien State Park and flows about 1.5 miles where the stream enters the City. The 'Nine Springs' wetland and natural springs mentioned earlier feed into the Mill Stream.

Below this site, the stream flows under a bridge (County Road 4) and is then impounded (Upper Mill Pond) behind a concrete weir constructed across what was once a waterfall. The stream then flows as a high gradient stream over bedrock within a deep valley for several hundred feet. West of Highway 95 the gradient of the stream lessens considerably as it flows across the middle terrace of the St. Croix River and through the center of the City. Below Highway 95 the

Mill Stream flows through an additional groundwater-fed wetland complex. Just west of Judd Street the stream is again impounded behind a concrete weir, forming the Lower Mill Pond. Below the second weir the stream flows under and through the Brookside Bar and Grill, then under Judd Street and outlets over a second waterfall. Below this waterfall, the Mill Stream flows several hundred more feet through a floodplain forest where it discharges into the St. Croix River.

Brook Trout (*Salvelinus fontinalis*) are known to occur throughout the entire length of the Mill Stream, including the recently restored tributaries. The best habitat, however, is within the lower sections of the creek below the Upper Mill Pond.

Wetlands

As can be seen by Map 3, a significant portion of the City has been identified as wetlands complex. In the 'lower' City, wetlands can be found in the area between Highway 95 and Judd Street, south of the Village Center. More wetlands are sited in the area west of the St. Croix River and north of the Village Center, along Second Street. There are additional wetland areas on top of the bluff, including the 'Nine Springs' restoration area as well as the area south of 'Nine Springs' and across County Road 4. These wetlands play an important role in surface water management; City and County ordinances are designed to protect and maintain these wetlands.

Policies and Goals

Introduction

The US Environmental Protection Agency (EPA) indicates that over 90 percent of the pollution of the nation's waterways is from nonpoint source pollution runoff. Examples of nonpoint source pollution include by-products from vehicle operation (emissions, automobile wear), fertilizer run-off, failing septic systems, animal wastes, erosion from construction sites or agricultural sites, etc. Attention must be placed on surface water management, as increases in both the volume and rate of water runoff directly affect the amount of polluting materials that will be introduced into receiving water bodies.

The City of Marine on St. Croix is located in an environmentally sensitive area that encompasses a federally protected river, high quality wetlands, and a network of natural springs and spring creeks which support a variety of micro-organisms and aquatic life, including brook trout.

The City and its residents are committed to the goal of no adverse impact for water resources and will continue to identify, monitor and work to eliminate those factors contributing to nonpoint source pollution which are within the City's control. Much of the infrastructure of the City of Marine on St. Croix (impervious surface including local, county and state roads, and housing/building inventory)

was developed prior to any recognition of the need to control surface water runoff. A significant portion of the City of Marine on St. Croix is restricted from future development (see map 4, 2030 Comprehensive Plan – Greenway) due to ownership by the State of Minnesota (William O'Brien State Park), conservation trust (Jackson Meadow development open space, Warth/Matsumoto property), highway right-of-way, city parks and trails, wetlands, and slopes over 18 percent. This situation does not make surface water management any less important, but will mean that the strategies and policies used by the City will be less focused on nonpoint sources associated with new construction or commercial development, and more focused on opportunities that arise to improve the surface water management within a mature, small city.

The Metropolitan Council has previously identified the City of Marine on St. Croix as 'Rural Center' and 'Diversified Rural Community' within its planning categories. The Metropolitan Council has identified the population of Marine on St. Croix as 602 people and 254 households, based on the 2000 census. The City has estimated its population at 650 people, with a tax base of approximately 300 households.

Erosion Control

The City is committed to the goal of no adverse impact (nondegradation goal) on our water resources. In support of that goal, the City has a policy of managing new construction to minimize erosion control and to avoid large grading and reclamation projects unless the project is properly managed. The City adopted Ordinance Number 120 in 2005, 'Erosion Control' regarding erosion and sediment control (see Appendix 1). This ordinance addresses new construction and those sites where grading or reclamation will take place.

The 2030 Comprehensive Plan highlights that the City has very few sites left for new home construction, and all commercial development is restricted to the Village Center (downtown area). The City's ability to manage and effect erosion control associated with construction will primarily be in the areas of house remodeling or renovation, lot improvements such as driveway construction, and street, county road or state highway construction.

The City identified erosion control concerns associated with driveway construction in 2007, and now requires the land owner to apply for a permit when constructing a driveway (See Appendix 2, Ordinance 127). This process gives the City an opportunity to educate the land owner regarding erosion control and the City ordinance, and provides a mechanism for the City to inspect and confirm erosion control measures are in place.

Peak Runoff Control

It is City policy to recognize the impact of stormwater runoff on the sensitive wetland areas of the City and on the St. Croix River, and to manage peak runoff to minimize this impact. The topography of the Marine on St. Croix area increases the importance of stormwater runoff control.

A study entitled 'Preventing Stormwater Runoff Problems Through Watershed Land Design' (Vogel et.al, 1999, Department of Landscape Architecture, University of Minnesota) included a thorough study of the stormwater flow within the City of Marine on St. Croix. This study identified the 19th Century village characteristics that have been retained within the City, noting that development patterns were greatly influenced by the topography of the area, as buildings were sited away from ravines, natural drainageways, and wetlands since large earth-moving equipment was non-existent during the development of the City. This development pattern continues today, as many of the areas of overland drainageways, streams, natural wetlands and swales/ditches have been retained as parks or right-of-ways that act as a greenway within the City, and allow the temporary retention and filtration of stormwater. In fact, the overland flow of water has become a feature that is treated as an amenity in the City, whether it is a streetside wetland garden, or a bridged community ravine (Vogel, et al, 1999) To further aid in erosion control and surface water management, the massing of vegetation along ravine banks and other overland water drainageways greatly

aids transpiration, infiltration and soil stabilization. Additionally, streets and structures are located and aligned in a manner that often does not disrupt the original, natural drainage patterns. Streets have tended to follow existing topography, requiring less grading, and preserving the natural slopes, plus traditional minimal use of street curbs allows water to sheetflow into roadside swales. Here the water is more gradually carried away to the river or infiltrates into the soil below. In addition, there are several undeveloped meadows, located on the upper river terraces (Jackson Meadow is one site), that function as holding areas for stormwater, before it continues on its way to the St. Croix River (Vogel, et al, 1999).

The City has adopted ordinances which help to control and minimize peak runoff. In the St. Croix River Urban and Rural districts, ordinances require lower density (1 acre lots), and also require less than 20 % impervious surface. In all districts construction is prohibited on slopes greater than 18 %. Within the St. Croix River districts no construction is allowed on slopes greater than 12 %. In other City districts construction on slopes between 12 and 18% is carefully reviewed.

The City's subdivision ordinance requires a 50% set aside of green space for major subdivisions. The City works with the County to identify and maintain critical wetlands and no construction is allowed in these areas. The City continues to minimize the use of street curbs, and continues to use its traditional stormwater management system of ditches, swales and meadows. In addition, as the City undertakes street improvement projects it has a policy of working to improve stormwater pre-treatment.

Additional policies and ordinances which support the goal of no adverse impact on our water resources include the City's long-time policy of not vacating City right-of-way's. This policy is especially important as many east-west streets are platted to the St. Croix River, providing additional greenways as these streets are not maintained for vehicular traffic. The City's erosion control ordinance includes the requirement that new construction ensure surface water runoff from a lot is at its pre-development rate, and also requires new construction to maintain the natural drainageways of the City. The City anticipates these requirements will become part of the watershed district permitting process, once the CMSCWD completes its initial, rule development phase. The City will review its ordinances which address erosion control and stormwater runoff when the CMSCWD adopts its new rules, to ensure the watershed district goals are consistently met.

Wetland Management Plan

The City has a significant number of wetland areas and has long had a policy of developing ordinances to protect those wetlands. The City does not allow construction on wetlands. The City retains a large number of vegetation buffers which aid in the health of the wetland areas (Vogel, 1999). The City also has limitations on vegetation removal within its St. Croix River zoning districts, which encompass many of the City's wetland areas. The City requires every property

owner who applies for a building permit to develop a previously undeveloped lot must show the capacity for two individual sewer systems, planning for the potential failure of one of the sites. This policy is important to the maintenance of wetland quality, given the large number of high quality wetland sites with City boundaries.

The City is responsible for wetland management within its boundaries. The City has about 300 households which make up its tax base, and it receives virtually no Local Aid from the state. The City has a responsibility to maintain the public health and safety of all its citizens, a responsibility which includes many areas of which surface water management is one. As a member of the CMSCWD, the City will see synergistic benefits when its citizens' share of the watershed budget is combined with other members of the district. The CMSCWD will develop and support watershed projects which will benefit the entire watershed district.

To complete its wetland management plan, the City will complete a function and value assessment for wetlands. The 2006 Draft Watershed Management Plan of the MWMO included a plan to develop wetland management plans for existing wetlands, and restoration plans for drained wetlands (Policy 8) as part of Goal 1: Enhance or restore the water resources within the watershed. This plan was not adopted because the WMO has been replaced with the new watershed district. The CMSCWD identified funding to complete a wetland management plan and expects to complete the plan by 2009. The City will work with the CMSCWD as the watershed wetlands assessment is completed, as this information will provide the basis for the City's wetland management plan. The City expects to complete its wetland management plan within one year after the function and value assessment for the watershed district is completed. This plan will identify all ordinances, policies and plans the City currently has regarding wetlands. The City goal of improving pre-treatment of stormwater runoff from City streets, discussed later in this surface water management plan, will be updated as part of the wetland management plan. The plan will further address vegetation buffer issues within the City, building upon those already in place in the St. Croix River zoning districts.

MS4 Community

The City of Marine on St. Croix is not a MS4 community.

Funding Mechanism

The City carefully reviews all budget items beginning in August of each year, with the final budget and tax levy being passed in December. The City tax levy will fund the implementation and enforcement of all surface water management ordinances and policies. It should be noted the City budget currently includes wetland management, surface water management and stormwater runoff control expenditures. These items are included in the 'Roads' and 'Wastewater System'

portions of the budget (see 'City Budget, Appendix 3). In addition, each tax payer in the City pays a tax to support the CMSCWD budget (see 'CMSCWD budget, Appendix 4). With the formation of the CMSCWD, the individual tax payer's contribution to the CMSCWD funding increased over three hundred percent as compared to Marine on St. Croix taxpayer contributions to the MWMO in the prior year.

It should be noted the City installed a 201 system in the mid-1980s, using federal funding to convert most of the individual sewer systems within the St. Croix River zoning district and other parts of the City, to City sewer. Also at that time the City took over responsibility for the inspection and maintenance of many of the individual sewer systems that were not included in the City wastewater system due to location or other reasons. The installation, careful maintenance and expansion of the overall wastewater system had and has the largest impact on water quality of any project within the City, and requires significant budget support by the City's citizens. Because of the high bedrock configuration and hence high groundwater levels in the Marine on St. Croix area, as well as the location of the City on the St. Croix River, failing individual sewer systems will have an immediate impact on ground water, surface water and river water quality. The original life of the City drain field was twenty years, but through careful maintenance the City and its engineers estimate the drain field will function for approximately twenty more years. The City continues to increase its wastewater reserve in anticipation of the need additional infrastructure maintenance. The City is in the process of adding eight additional homes in the riverway district, in recognition that their individual sewer systems are close to failure. This project is being managed by the City and being funded by the individual home owners at a total cost of about \$200,000, a significant investment toward improved water quality.

Prioritized Surface Water Issues and Corrective Actions

It is not unusual to find that the result of a strategic planning process is a long list of goals and multiple strategies to achieve those goals, all enthusiastically identified and supported. After reality kicks in, however, limited time and resources often mean it is rarely possible to focus on achieving a large number of strategic goals while at the same time completing the necessary shorter term objectives. In recognition of the need to focus on a realistic number of surface water management goals in the hope to achieving them, the City has identified three surface water issues and the corrective actions needed to address these issues. It is anticipated additional goals and strategies will be identified as these goals are met:

1. *Improve Village Center Stormwater Management.* The Village Center (downtown area) of Marine on St. Croix has a large percentage of impervious surface, as is often found in commercial centers. The Council has been

concerned for a number of years over stormwater runoff from the Village Center that goes directly into the Mill Stream without any filtering or without first going through a settling area. In addition, the City has identified the Lower Mill Pond as needing dredging to increase its ability to accept storm runoff and reduce the amount of sediment and runoff that is output to the St. Croix River. It is suspected that a high percentage of the stormwater runoff originates from Highway 95, which further complicates this issue as the City does not have control over the design or maintenance of the highway, nor over its use.

Corrective Action:

- A major upgrade of Judd Street (the main street through the Village Center) is anticipated within five - seven years. This project presents the City with an excellent opportunity to address stormwater runoff issues in the Village Center. However, the City must first identify the source and type of stormwater runoff, in order to begin to develop a plan to address and improve its stormwater runoff system. A study must be completed to understand the sources and types stormwater runoff in the Village Center. The study will help the City identify those factors over which it has control and those factors which will require MnDOT cooperation. It may be that many of the factors creating stormwater runoff issues are outside of the City's control. However, the Judd Street project will provide an opportunity to improve the situation to some degree. The City will request help from CMSCWD and MnDOT to begin a study of stormwater runoff and associated issues. In addition, the City will begin working with its engineering firm and with local water resource agencies such as the CMSCWD to identify solutions within the City's control which will allow pre-treatment of the runoff prior to entering the Mill Stream. The need to maintain specific temperatures within the Mill Stream will be factored in to this project, in order to protect the brook trout population. This project will require significant funding resources by the City. In addition, the City will probably need to partner with the adjoining land owner, the Minnesota Historical Society, as runoff may need to be directed to land not owned by the City.
- Budget to dredge the Upper and Lower Mill Stream Ponds, to increase the ability to accept storm runoff. The City will work with the CMSCWD and county to properly permit and plan for the dredging operation.
- The City will work with the CMSCWD to identify funding sources to try to implement these stormwater solutions more quickly than could be possible by relying solely on the local tax levy.

2. *Reduce runoff and improve pre-treatment of runoff from Highway 95 as it passes through the City.* One of the largest single sources of nonpoint source pollution in Marine on St. Croix is likely due to emissions and runoff created by automobiles passing through the City on Highway 95. The dumping of salt and sand during the winter months may exacerbate this problem.

The Department of Transportation has indicated it has scheduled maintenance work on Highway 95 in 2010. This may be an opportunity to work with the DOT to improve sediment and runoff collection before it enters the streams and wetlands surrounding the highway.

Corrective Action:

- The City will work with the CMSCWD, the Washington Conservation District and MnDOT to initially measure the impact of Highway 95 on surface water runoff and the introduction of pollutants into the surrounding wetlands. As noted before, the first step in improving a situation is to increase our understanding of what the sources and volume of nonpoint pollution are. The City will request MnDOT help with a study of the runoff from Highway 95. Once these measurements have been defined, the City and partners can continue to monitor and determine how much improvement is possible as a result of any highway design changes
- The City will continue to meet with officials from the Department of Transportation to review issues that affect Marine on St. Croix. The City will request MnDOT review the highway design and consider improvements that will improve collection and pre-treatment of runoff from the highway. As noted before, the first step in improving a situation is to increase our understanding of what the sources and volume of nonpoint pollution are. It may be that the City will have to wait until a time when a larger construction upgrade is planned on this section of the highway before larger improvements to surface water runoff can be made. However, keeping the dialogue open with the DOT and working with them to implement marginal improvements will be pursued in the shorter term. It is recognized that the City does not have control of the scheduling and funding of improvements to Highway 95, but past experience has shown the project engineers of the DOT respond to open and respectful discussion, and try to accommodate reasonable suggestions from the City.

3. *Improve and reduce stormwater runoff from City impervious surfaces through pre-treatment of runoff from City streets and lot development practices.* The City wants to improve the surface water quality within its boundaries, but given that its financial resources are limited, wants to ensure that the projects undertaken will have the largest potential to improve water quality. The City already is using many tools to address surface water management, although these have been developed at various times and without any overall surface and water management plan. These tools include lots size restrictions which affect density, open space requirements, maintenance of right-of-ways leading to increased green space, extensive shoreland constraints within the St. Croix National and Scenic Riverway, and many others. As noted under Objectives 1 and 2, a study is needed to quantitatively understand the volume and rate of water runoff, as well as the source of pollutants within the flows. This will lead to the identification and prioritization of improvements. The City recognizes that improved street

design could lead to better stormwater collection and pre-treatment. If the largest improvement to stormwater runoff improvements can be achieved through improved street designs, the City will increase the priority of these improvements.

The City currently has no impervious surface requirement in its Single Family Urban and Single Family Rural zoning districts. Although the City's erosion control ordinance is a tool for managing surface water runoff, an impervious surface standard would provide additional help in controlling and improving the surface water runoff within the City.

Corrective Action:

- As noted before, the City will work with CMSCWD, MnDOT, Washington County and other local water organizations to begin to study water runoff within Marine on St. Croix. These organizations will be able to provide technical and financial resources to complete a thorough study.
- A large portion of the impervious surface under control of the City is its streets. The City will work with its engineers to improve the pre-treatment of stormwater runoff along City streets. Using information from the above-mentioned study, the City will prioritize funding between improvements to the Village Center stormwater pre-treatment (Objective 1) and improvements to its street designs. The City can improve the pre-treatment of stormwater runoff along streets as planned maintenance of the streets is undertaken. However, if the study suggests street design may have the largest impact on improving stormwater runoff quality, the City will prioritize this investment and work to incorporate pre-treatment options more quickly.
- The City has an impervious surface requirement in its St. Croix River zoning districts, and has an erosion control requirements for all of its zoning districts. The City will complete its discussion regarding a new impervious surface restriction for its Single Family Urban and Single Family Rural zoning districts and adopt this requirement.

In addition to the three goals discussed above, the City plans to actively participate in the new CMSCWD and collaborate on new policies and programs regarding water resources in the City of Marine on St. Croix.

MPCA Impaired Waters List

The St. Croix River, specifically the section between Taylors Falls and the Apple River which includes the City of Marine on St. Croix, has been listed as impaired by the MPCA. The City has followed the process being undertaken by the St. Croix Basin Water Resources Planning Team and the work of its Implementation Subcommittee to study and develop a plan for point and nonpoint sources of nutrient loading. The City will support the EPA Total Maximum Daily Load (TMDL) program through cooperation with agencies and local stakeholder

groups, participation in TMDL studies, and implementation of recommendations from TMDL studies when applicable.

Financial Considerations

City of Marine on St. Croix 5 Year Capital Improvement Plan

Year	Project	Budget
2009	Request help from CMSCWD to define scope of study on runoff sources and volumes within the City, identify partners, kickoff meeting to design and begin study, put in City budget	
	Dredging of Upper & Lower Mill Ponds <ul style="list-style-type: none"> - Meet with CMSCWD, city engineer - Define needs - Put in 2010 City budget 	\$1,000
	Highway 95 Runoff Collection Improvements <ul style="list-style-type: none"> - Meet with MnDOT to discuss potential improvements, review plans to complete study, ask for participation 	
	Work with CMSCWD Watershed District <ul style="list-style-type: none"> - identify potential board member from City - attend meetings and working groups 	
	Complete City discussion on impervious surface restrictions in the Single Family Urban and Single Family Rural zoning districts and adopt ordinance	\$2,000
2010	Continue and conclude study on water runoff within the City, identify funding priorities	\$1,000 (total project \$5 – 10,000)
	Village Center Stormwater Improvements <ul style="list-style-type: none"> - Kickoff meeting with stakeholders - Identify goals, options - Investigate options - Ballpark estimates on options 	\$7,500
	Dredging of Upper & Lower Mill Ponds <ul style="list-style-type: none"> - put in additional funding need in 2011 budget - create reserve for project 	\$15 – 35,000
	Highway 95 Runoff Project <ul style="list-style-type: none"> - Meet with DOT to confirm improvements 	
	Improve stormwater collection and pre-treatment of City streets, as part of on-going street improvement projects	\$10 - \$25,000
	Work with CMSCWD <ul style="list-style-type: none"> - attend meetings 	
2011	Village Center Stormwater Improvements	\$4 – 8,000

	<ul style="list-style-type: none"> - Develop specifications on road project, including stormwater improvements, public hearings - Put additional funding into Road reserve 	(total project \$25 – 50,000)
	Dredging of Upper & Lower Mill Pond <ul style="list-style-type: none"> - Define needs - Collect bids - Complete project 	\$15 – 35,000
	Highway95 Runoff Project <ul style="list-style-type: none"> - meet with MnDOT 	
	Improve stormwater collection and pre-treatment of City streets, as part of on-going street improvement projects	\$10 - \$25,000
	Work with CMSCWD <ul style="list-style-type: none"> - attend meetings 	
2012	Village Center Stormwater Improvements <ul style="list-style-type: none"> - Complete bidding process for partial completion of project - Put additional funding into Roads reserve 	\$50 – 250,000
	Highway 95 Runoff Project <ul style="list-style-type: none"> - meet with MnDOT 	
	Improve stormwater collection and pre-treatment of City streets, as part of on-going street improvement projects	\$10 - \$25,000
	Work with CMSCWD <ul style="list-style-type: none"> - attend meetings 	
2013	Village Center Stormwater Improvements <ul style="list-style-type: none"> - Complete bidding process for partial completion of project - Put additional funding into Roads reserve 	\$50 – 250,000
	Work with CMSCWD <ul style="list-style-type: none"> - attend meetings 	

Funding for stormwater infrastructure maintenance is included in the City's annual budget, under 'Roads'.

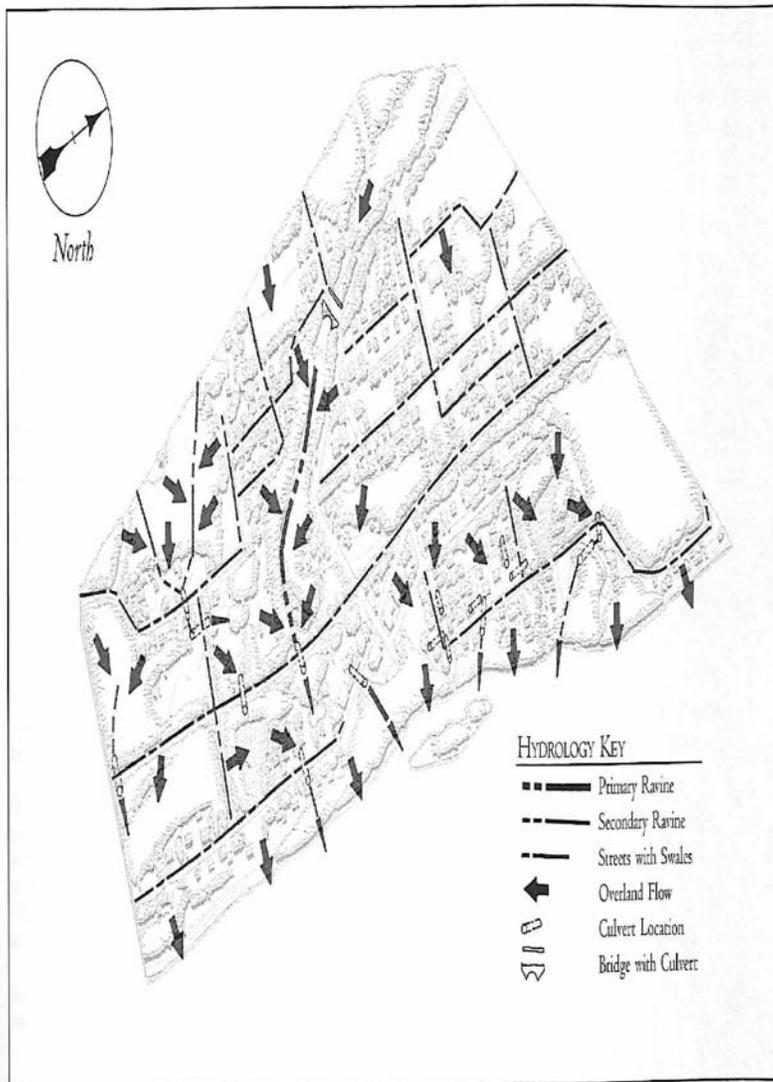
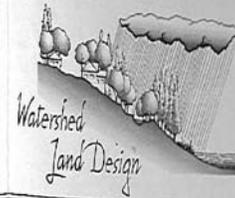
Management of Stormwater

The discussion earlier in this plan regarding the retention by Marine on St. Croix of 19th century village characteristics detailed how the City currently minimizes peak stormwater flows. Placement of many of the structures and streets within the City, together with the retention of a significant portion of wetlands, has meant the natural overland water drainageways have been retained throughout the village, creating a system of ponding sites and filtering locations, and an overall reduction in sediment and runoff reaching the St. Croix River. When discussing land-altering activities within the City, large area of impervious surface within the City's control (not including State Highway 95, nor County Roads 4 and 7) include the Village Center, and the City's streets. These areas offer the City the biggest potential improvements in the control and reduction of stormwater runoff. The City will work with partners to complete a study of stormwater runoff and use the results to prioritize funding of improvements. The City has identified a project to reduce stormwater flow into the Mill Stream as a high priority. The City will work with its engineering company, the County and the watershed district to identify the best design for achieving the desired reduction in stormwater runoff. In addition, the City will direct its engineering company to incorporate design suggestions from resources such as the 'Minnesota Stormwater Manual' and the 'Minnesota Urban Small Sites BMP Manual.' The City will also improve pre-treatment of stormwater runoff from City streets. The City believes these two projects will have the largest impact on improving stormwater quality within in the City, but will require the study results to finalize plans. The City will work with the CMSCWD to measure and monitor improvements in pollutant removal efficiency as part of this study.

Trout Stream Thermal Pollution Reduction

The Mill Stream which flows through the City of Marine on St. Croix has been identified by the Minnesota DNR as a trout stream. While there are very few lots available for development along this stream, the City remains concerned about the effects of thermal pollution on the health of the stream and its inhabitants. Demonstrating their appreciation of the natural resources of the Marine on St. Croix area, and of the Mill Stream in particular, several far-sighted residents formed the 'Mill Stream Association' in 1997. This private group has worked with the DNR and local watershed organization to study and monitor the stream, and is dedicated to ensuring the stream remains a valued and pristine resource within the City. Through the educational and outreach efforts of the Mill Stream Association, the City and its residents are aware of the importance of avoiding any development which will increase the temperature of the stream. The City will continue to work cooperatively with the private land owners along the stream to maintain the health of the stream.

Regional Precedents



MARINE ON SAINT

CROIX

HYDROLOGY ANALYSIS

DRAWING

The hydrology of Marine is based on a dendritic pattern of wetlands, swales, and ravines. The overland flow of water becomes a feature that is treated as an amenity in Marine, be it a streetside wetland garden, or a bridged community ravine. The natural drainage systems were not disrupted by major topographic moves and water is allowed to drain naturally to the river. Curb and gutter have been virtually eliminated from the town, and water often sheetflows into roadside swales. It is then carried gradually away to the river, or infiltrates into the soil below.

Map 5 – Marine on St. Croix Hydrology Analysis

Amendments to Surface Water Management Plan

The City of Marine on St. Croix has developed its 5 Year Surface Water Management Plan. This plan will be used as a guide for prioritizing and budgeting the surface water management projects of the City during the next five years. The plan will be reviewed on an annual basis, during the planning and budgeting process of the City. Any changes to the plan will be discussed and adopted by the City Council as an amendment to the plan, at a regularly scheduled Council meeting. A comprehensive review of the plan will occur every five years, to ensure the plan continues to meet the Metropolitan Council's objective of achieving cost-effective management of the region's water quality and quantity.

Summary of Existing Studies, and Documents used in the preparation of the
2013 City of Marine on St. Croix Surface Water Management Plan

Mill Stream Natural Resource Inventory, 1998-1999, Emmons and Olivier
Resources, Inc.

MWMO Natural Resource Inventory, 1999-2000, Emmons and Olivier
Resources, Inc.

MWMO 2006 Draft Watershed Management Plan, Emmons and Olivier
Resources, Inc.

Lower St. Croix River Spring Creek Stewardship Plan, 2000-2003, Marine
Watershed Management Organization

Appendix 1

Ordinance 127 – Erosion Control

405. Environmental Standards.

405.1 Land Reclamation and Land Grading.

- (1) Within this Ordinance, land reclamation is the reclaiming of land by depositing or moving material so as to alter the grade. Land reclamation shall be permitted by Grading and Filling Permit in all districts. Depositing a total of more than fifty (50) cubic yards of material per 1/2 acre or less, either by hauling in or regrading the area, shall constitute land reclamation. The permit shall be issued only after the City has received and approved a finished grading plan, pursuant to Section 306 of this Ordinance, which shows that the land reclamation will not adversely affect the adjacent land. The permit may include conditions regarding the type of material permitted, program for rodent control, plan for fire control, and general maintenance of the site controls of vehicular ingress and egress, drainage and control of material dispersed from wind or hauling of material to or from the site.
- (2) A grading and filling permit may be issued only if:
 - (a) Slopes greater than twelve (12) percent (twelve (12) feet vertical rise in one hundred (100) horizontal feet) are preserved to the greatest extent possible;
 - (b) Earth moving, erosion, vegetative cutting, drainage to adjacent properties, filling of wetlands, and the destruction of natural amenities is minimized;
 - (c) The smallest amount of ground is exposed for as short a time as possible;
 - (d) During construction, temporary ground cover such as mulch is used and permanent ground cover such as sod is planted upon completion, taking into consideration seasonal conditions;
 - (e) Methods to prevent erosion and trap sediment are employed; and

- (f) Fill is stabilized to accepted engineering standards.
- (3) A separate grading and filling permit is not required for grading, filling, or excavating the minimum area necessary for a structure, sewage disposal system and private road and parking area undertaken pursuant to a validly issued building permit.
- (4) No water area shall be filled, partially filled, dredged, altered by grading, mining or otherwise utilized or disturbed in any manner without first securing a permit from the Minnesota Department of Natural Resources, the U.S. Army Corps of Engineers, and the affected Watershed District or Watershed Management Organization, as applicable. Such grading may be reviewed and approved by the Department of Natural Resources, the city engineer, the Watershed District, Watershed Management Organization, and the Planning Commission.
- (5) Water areas shall include all lakes, ponds, swamps, streams, drainageways, floodways, natural water courses, underground water resources and similar features involving directly or indirectly the use of water within the community

405.2 Drainage Plans.

- (1) In case of all residential subdivisions containing three (3) or more lots, and business and industrial developments, the grading and drainage plans shall be submitted to the City Engineer for review and the final grading and drainage plans shall be subject to the City Engineer's written approval. The grading and drainage plans must show compliance with all of the applicable performance standards of Section 405 of this Ordinance.
- (2) As part of a building permit application for a single family home, a site survey showing grading, drainage, and building pad (location and elevation) must be submitted. Such documents shall be consistent with the approved final grading plan of the subdivision. If a final grading plan for the subdivision does not exist, the grading plan must demonstrate site drainage that meets the standard of this section and will not result in drainage or flood that may encumber adjoining properties.
- (3) Prior to issuance of a certificate of occupancy, the holder of the building permit must submit certification that the grading and drainage was performed consistent with the approved grading and drainage plan. The City may, at the permit holder's expense, direct the City Engineer to review, inspect, and verify that the actual site

grading has been completed in accordance with the approved grading and drainage plan.

- (4) Storm water drainage may be discharged into marshlands, swamps, retention basins after passing through appropriate water quality treatment facilities. Diversion of storm water to marshlands or swamps may be considered for existing or planned surface drainage. Marshlands and swamps used for storm water storage shall provide for natural or artificial water level control. Retention and water quality treatment basins scattered throughout developed areas shall be encouraged to improve storm water quality, reduce peak flow, erosion damage, and construction cost.
- (5) Storm water drainage plans for any development site or subdivision, except those sites in the Village Center Zoning District, shall manage storm water flows from the site at pre-development volumes and rates both during and at the completion of site development.

405.3 Soil Erosion and Sedimentation Control. All site grading shall meet the following soil erosion and sediment control standards:

- (1) All grading, filling and development shall conform to the natural limitations presented by the topography and soil so as to create the best potential for preventing soil erosion.
- (2) Slopes over eighteen percent in grade shall not be developed.
- (3) Development on slopes with a grade between twelve to eighteen percent shall be carefully reviewed to insure adequate measures are taken to prevent erosion, sedimentation, and structural damage.
- (4) Erosion and siltation control measures shall be coordinated with the different stages of development. Appropriate control measures shall be installed prior to development when necessary to control erosion.
- (5) Land shall be developed in increments of workable size such that adequate erosion and siltation controls can be provided as construction progresses. The smallest practical area of land shall be exposed at any one period of time.
- (6) The drainage system shall be constructed and operational as quickly as possible during construction.

- (7) Whenever possible, natural vegetation shall be retained and protected.
- (8) Where the topsoil is removed, sufficient arable soil shall be set aside for respreading over the developed area. The soil shall be restored to a depth of four (4) inches and shall be of a quality at least equal to the soil quality prior to development.
- (9) When soil is exposed, the exposure shall be for the shortest feasible period of time. No exposure shall exceed sixty (60) days. Said time period may be extended only if the Planning Commission is satisfied that adequate measures have been established and will remain in place.
- (10) The natural drainage system shall be used as far as is feasible for storage and flow of runoff.

405.4 **Exposed Slopes.** The following control measures shall be taken to control erosion during construction:

- (1) No exposed slope steeper in grade than five (5) feet horizontal to one (1) foot vertical is permitted.
- (2) Exposed slopes steeper in grade than ten (10) feet horizontal to one (1) foot vertical shall be contour plowed to minimize direct runoff of water.
- (3) At the foot of each exposed slope, a channel and berm shall be constructed to control runoff. The channelized water shall be diverted to a sedimentation basin (debris basin, silt basin, or silt trap) before being allowed to enter the natural drainage system.
- (4) Along the top of each exposed slope, a berm shall be constructed to prevent runoff from flowing over the edge of the slope. Where runoff collecting behind said berm cannot be diverted elsewhere and must be directed down the slope, appropriate measures shall be taken to prevent erosion. Such measures shall consist of either an asphalt paved flow apron and drop chute laid down the slope or a flexible slope drain. At the base of the slope drain or flow apron, a gravel energy dissipator shall be installed to prevent erosion at the discharge end.
- (5) Exposed slopes shall be protected by whatever means will effectively prevent erosion considering the degree of slope, soils

material, and expected length of exposure. Slope protection shall consist of mulch, sheets of plastic, burlap or jute netting, sod blankets, fast growing grasses or temporary seedlings of annual grasses. Mulch consists of hay, straw, wood chips, corn stalks, bark, or other protective material. Mulch shall be anchored to slopes with liquid asphalt, stakes, and netting, or shall be worked into the soil to provide additional slope stability.

- (6) Control measures, other than those specifically stated above, may be used in place of the above measures if it can be demonstrated that they will as effectively protect exposed slopes.

405.5 Preservation of Natural Drainageways.

- (1) Waterways.

- (a) All new development and subdivisions shall be designed to retain the natural drainage systems in the City, including existing wetlands and ponds. The natural drainage system will be maintained by the City where they exist within a public easement. Above-ground runoff disposal waterways may be constructed to augment the natural drainage system. The natural and constructed waterways may be coordinated with an open space trail system.
- (b) The widths of a constructed waterway shall be sufficiently large to adequately channel runoff from a ten (10) year storm. Adequacy shall be determined by the expected runoff when full development of the drainage area is reached.
- (c) No structures except bridges shall be constructed across the any waterway, tributary, stream, or wetland.
- (d) No building shall be located within twenty (20) feet of the ordinary high water level of any waterway, tributary, stream, or wetlands.
- (e) No fence or bridge shall be constructed across or over any waterway, tributary, stream, or wetland that will reduce or restrict the flow of water.
- (f) The banks of the waterway shall be protected with a permanent turf vegetation.
- (g) The banks of the waterway shall not exceed five (5) feet

horizontal to one (1) foot vertical in gradient.

- (h) The gradient of the waterway bed shall not exceed a grade that will result in a velocity that will cause erosion of the banks of the waterway.
- (i) The bed of the waterway shall be protected with turf, sod, or concrete. If turf or sod will not function properly, rip rap may be used. Rip rap shall consist of queried limestone, fieldstone (if random rip rap is used) or construction materials provided said construction materials are limited to asphalt, cement and concrete. The rip rap shall be no smaller than two (2) inches square nor no larger than two (2) feet square. Construction materials shall be used only in those areas where the waterway is not used as part of a recreation trail system.
- (j) If the flow velocity in the waterway is such that erosion of the turn side-wall will occur and said velocity cannot be decreased via velocity control structures, then other materials may replace turf on the side walls. Either gravel or rip rap would be allowed to prevent erosion at these points.

(2) Waterway Velocity.

- (a) The flow velocity of runoff in waterways shall be controlled to a velocity that will not cause erosion of the waterway.
- (b) Flow velocity shall be controlled through the installation of diversions, berms, slope drains, and other similarly effective velocity control structures.

(3) Sediment Control.

- (a) To prevent sedimentation of waterways, pervious and impervious sediment traps and other sediment control structures shall be incorporated throughout the contributing watershed.
- (b) Temporary pervious sediment traps could consist of a construction of bales of hay with a low spillway embankment section of sand and gravel that permits a slow movement of water while filtering sediment. Such structures would serve as temporary sediment control features during the construction stage of development. Development of housing and other structures shall not be permitted in the area on

either side of the waterway required to channel a twenty-five (25) year storm.

- (c) Permanent impervious sediment control structures consist of sediment basins (debris basins, desilting basins, or silt traps) and shall be utilized to remove sediment from runoff prior to its disposal in any permanent body of water.

(4) Maintenance of Erosion Control Systems.

- (a) The erosion and velocity control structures shall be maintained in a condition that will insure continuous functioning according to the provisions of this ordinance.
- (b) Sediment basins shall be maintained as the need occurs to insure continuous desilting action.
- (c) The areas utilized for runoff waterways and sediment basins shall not be allowed to exist in an unsightly condition. The banks of the sediment basins and waterways shall be landscaped.
- (d) Prior to the approval of any plat for development, the developer shall make provisions for continued maintenance on the erosion and sediment control system.

405.6 Wetland Preservation.

(1) General Provisions.

- (a) All wetlands in the city including marshlands and swamps shall be retained in their natural state to serve as storm water runoff basins and also as wildlife habitat. Filling or excavation of wetlands is prohibited.

- (2) Vegetation. No wetland vegetation may be removed or altered except that reasonably required for the placement of structures and use of property as permitted by this Ordinance.

Appendix 2

Ordinance 120

406.4 Driveways

Subd. 1. Permit Required. No person shall construct a driveway or make a major alteration of a driveway in any area of the City without first obtaining a permit from the Building Inspector. The application for a permit shall be submitted to the Building Inspector on forms provided by the Zoning Administrator. The Building Inspector may require that the application be accompanied by plans and specifications for the work. The application shall be accompanied by the fee as set by the City Council. If determined necessary by the Building Inspector and City Clerk, a security deposit equal to or less than the estimated cost of the work shall be required.

Subd. 2. Standards and Guidelines. No permit shall be issued unless the proposed work complies with the following standards and guidelines:

(1) Materials. That portion of the private driveway, private street or lane which traverses the public street right-of-way shall be constructed of materials as follows:

A. If the private driveway, street or lane intersects a concrete street or a concrete curb and gutter, then the apron and new gutter shall be concrete.

B. If the private driveway, street or lane intersects a bituminous roadway without concrete curb and gutter, the intersecting area may be concrete, bituminous or other materials approved by the Engineer.

(2) Maximum Width. The maximum driveway width at the curb line of the street and at the property boundary line shall be 30 feet exclusive of returns.

(3) Minimum Distance to Street Intersection. The minimum distance between the driveway and the nearest return of the intersection of two streets shall be 50 feet as measured at the curb line of the street.

(4) Minimum Distance Between Driveways. The minimum distance between adjoining driveways shall be 15 feet as measured at the curb line of the street.

(5) Minimum Distance Between Driveway and Lot Line. The minimum distance between a driveway and a side lot line shall be 10 feet as measured at the curb line and at the property boundary line of the street.

(6) Maximum Number. On lots less than 75 feet in width, no more than one driveway per lot shall intersect a street.

(7) Other Standards. The Building Inspector and/or Zoning Administrator may adopt additional standards as to the design, materials, and installation of driveways to be located on the right-of-way of streets.

(8) Exceptions. The Building Inspector may grant exceptions to the standards and guidelines of this Subsection in order to allow reasonable access to property, provided that such exceptions do not result in conditions hazardous to vehicular and pedestrian traffic.

Subd. 3. Issuance of Permit. The Building Inspector and/or Zoning Administrator shall grant a permit upon finding the work will comply with the requirements of this Section.

Subd. 4. Final Inspection. After all construction and clean-up has been completed, the permit holder shall notify the Building Inspector and request final inspection and acceptance of the work.

Subd. 5. Penalty. A violation of this chapter shall be punishable by a fine of not to exceed \$1,000 or Imprisonment for not to exceed 90 days, or both.

Appendix 3

Marine on St. Croix 2008 City Budget

<u>Proposed</u>			7.6781%
<u>Budget</u>			^^^^^^^^^^
<u>Year</u>	<u>% of Total</u>	LEVY INCREASE	FUND NAME
<u>2008</u>	<u>Budget</u>		GENERAL INCOME
615808.15	66.41%	LEVY(HACA & FIRE CNTRACT ADDED BACK)	
4100.00	0.44%	LOCAL GOVERNMENT AID	
	0.00%	MARKET VALUE CREDIT	
465.00	0.05%	PERA-AID	
240.00	0.03%	GRAVEL TAX/AG TAX	
	0.00%	LICENSE, BEER, CIG	
100.00	0.01%	ASSMT SEARCH, MISC./BLDG/INS.DIV.	
0.00	0.00%	ANIMAL	
1500.00	0.16%	FINES - Washington County	
1000.00	0.11%	INTEREST-GENERAL	
4000.00	0.43%	CABLE FRANCHISE	
3000.00	0.32%	INSURANCE DIVIDEND	
	0.00%	COMPREHENSIVE PLAN UPDATE-GRANT	
50.00	0.01%	MISCELLANEOUS	
25000.00	2.70%	BUILDING INSPECTION FEE	
	0.00%	FIREWORKS (SEE P&R)	
0.00	0.00%	MOVIE PERMIT	
	0.00%	COPIER REIMBURSEMENT	
0.00	0.00%	OAKWILT REIMBURSEMENT	
	0.00%	MOSCWATERSHED	
655263.15	70.67%	TOTAL INCOME	
	0.00%		
	0.00%	GENERAL EXPENSES	
500.00	0.05%	ANIMAL CONTROL	
5700.00	0.61%	ASSESSOR	
3500.00	0.38%	AUDITOR	
1000.00	0.11%	ZONING ADMINISTRATION	
2500.00	0.27%	MUNICIPAL CLERK'S INSTITUTE & CONFERENCE	
1200.00	0.13%	DUES	
2500.00	0.27%	ELECTIONS-LEASE	
1500.00	0.16%	ENG SERVICES	
26500.00	2.86%	INSURANCE	

6000.00	0.65%	WORKER'S COMP
10000.00	1.08%	LEGAL SERVICES
250.00	0.03%	MEETING EXPENSE
1500.00	0.16%	PBLSHNG & ADVRTSNG
0.00	0.00%	SALARY-COUNCIL
39242.95	4.23%	SAL-C/T \$4200 UNDER WWT/\$1000 UNDER ZA
14690.00	1.58%	SAL-ASST. CLERK
56568.60	6.10%	SAL-PUBLIC WORKS \$7000 LSTD UNDER WWT
40361.60	4.35%	SAL-PUBLIC WORKS \$7000 LSTD UNDER WWT
25500.00	2.75%	INSURANCE - EMPLOYEES
59500.00	6.42%	PAYROLL TAXES-FICA/PERA/MEDICARE
25000.00	2.70%	BUILDING INSPECTOR
1000.00	0.11%	BUILDING FEES-STATE SURCHARGE FEES
2500.00	0.27%	GEN-SERVICES
6000.00	0.65%	SERVICES-COPIER,ETC.
15000.00	1.62%	PLANNING
4000.00	0.43%	MATERIALS AND SUPPLIES
2500.00	0.27%	TELEPHONE
1000.00	0.11%	OFFICE-EQUIP
	0.00%	MISCELLANEOUS
500.00	0.05%	PC MEETING EXPENSE & APPRECIATION DINNER
300.00	0.03%	WEB SITE - LMC
3000.00	0.32%	PUBLIC WORKS OVERTIME
	0.00%	WATER MANAGEMENT ORGANIZATION-CITY OBLIGATION
	0.00%	OAKWILT REIMBURSEMENT
1000.00	0.11%	MILLSTREAM ASSOCIATION
360313.15	38.86%	EXPENSES TOTAL
	0.00%	
	0.00%	PUBLIC SAFETY INCOME
	0.00%	
	0.00%	FIREMEN'S RELIEF
	0.00%	FIRE CALLS
20000.00	2.16%	AMBULANCE CALLS
100.00	0.01%	MISCELLANEOUS
10000.00	1.08%	2% STATE AID-FIREMAN'S RELIEF
22713.13	2.45%	MAY FIRE CONTRACT-CPI 2.7%
5800.00	0.63%	MAY TOWNSHIP 800MHZ CONTRIBUTION
1920.00	0.21%	MAY TOWNSHIP 800MHZ OPERATING
	0.00%	AMBULANCE FUNDRAISER
	0.00%	PS-STREET DANCE
	0.00%	PSF-FUNDRAISER PROCEEDS
	0.00%	PSF-GRANT MONEY
	0.00%	PSA-GRANT MONEY

1500.00	0.16%	INTEREST
	0.00%	CASH IN OF CD'S
	0.00%	RELIEF FUNDS
	0.00%	PSA-DEDICATED
	0.00%	DONATIONS
	0.00%	DEDICATED
62033.13	6.69%	SAFETY INCOME TOTAL
	0.00%	
	0.00%	PUBLIC SAFETY EXPENSE
	0.00%	
3500.00	0.38%	TRAINING EXPENSE-FIRE
4000.00	0.43%	TRAINING EXPENSE - AMBULANCE
3200.00	0.35%	ELECTRICITY & HEAT
2200.00	0.24%	FUEL-VEHICLES
1800.00	0.19%	TELEPHONE
3350.00	0.36%	PHYSICAL EXAMS & HEPATITIS
2200.00	0.24%	MEETING EXPENSE
0.00	0.00%	FIREMEN'S RELIEF PLUS CREDIT
12000.00	1.29%	FIREMEN'S RELIEF
10000.00	1.08%	2% STATE AID - FIREMAN'S RELIEF
4800.00	0.52%	800 MHZ RADIOS
3000.00	0.32%	REPAIRS-BLDG/EQUIPMENT
4200.00	0.45%	VEHICLE REPAIRS-FIRE
800.00	0.09%	VEHICLE REPAIRS-AMBULANCE
8000.00	0.86%	MATERIALS AND SUPPLIES
	0.00%	STREET DANCE
300.00	0.03%	NOTICES IN PAPER
9500.00	1.02%	NEW EQUIPMENT- FIRE
	0.00%	NEW EQUIPMENT - FEMA
1000.00	0.11%	NEW EQUIPMENT-AMBULANCE
2100.00	0.23%	INSURANCE
5500.00	0.59%	MEDICAL DIRECTOR/DUES/COLLECTION
250.00	0.03%	MISC-AMB-LICENSE
	0.00%	AMBULANCE OVERPAYMENT - REIMBURSEMENT
	0.00%	MISCELLANEOUS
	0.00%	PSF-FUNDRAISERS
	0.00%	PSA-FUNDRAISERS
81700.00	8.81%	PUBLIC SAFETY EXPENSE
	0.00%	
	0.00%	HALL INCOME
2000.00	0.22%	HALL RENT
10243.00	1.10%	LIBRARY RENT
	0.00%	INTEREST

	0.00%	FROM MARINE RESTORATION
	0.00%	CASH IN OF CD'S
	0.00%	MISCELLANEOUS
12243.00	1.32%	HALL INCOME TOTAL
	0.00%	
	0.00%	HALL EXPENSE
	0.00%	
4500.00	0.49%	HALL-ELECTRICITY&HEAT
1000.00	0.11%	REPAIR-BLDG
1500.00	0.16%	SPRINKLER MAINT. AND SERVICES
500.00	0.05%	ALARM CONTRACT
	0.00%	INTERIOR RUGS/RUNNERS
2500.00	0.27%	MATERIALS AND SUPPLIES
	0.00%	PAINTING
1000.00	0.11%	EQUIPMENT-NEW/REPAIRS
	0.00%	MISC. HALL EXPENSE
11000.00	1.19%	HALL EXPENSE TOTAL
	0.00%	
	0.00%	CEMETERY INCOME
	0.00%	
2500.00	0.27%	BURIALS
3500.00	0.38%	INTEREST INCOME
3000.00	0.32%	CEM LOT PURCHASE
3000.00	0.32%	PERPETUAL CARE PURCHASE
	0.00%	MISC.
	0.00%	
12000.00	1.29%	INCOME TOTAL
	0.00%	
	0.00%	CEMETERY EXPENSES
	0.00%	ELECTRICITY (HAND PUMP)
200.00	0.02%	FUEL VEHICLES
500.00	0.05%	REPAIR-NOT VEHICLES
200.00	0.02%	REPAIRS-VEHICLES
2500.00	0.27%	TREE TRIMMING AND REMOVAL
800.00	0.09%	MATERIALS & SUPPLIES
200.00	0.02%	TOOLS & EQUIPMENT
2000.00	0.22%	GRAVE OPENING
600.00	0.06%	POTTIES
	0.00%	MISCELLANEOUS (LOT BUY BACK)
7000.00	0.75%	EXPENSE TOTAL
	0.00%	
	0.00%	PARKS, ARTS, & RECREATION
500.00	0.05%	FIREWORK DONATIONS

	0.00%	N.H-SAVINGS(NOT PART OF BUDGET)
	0.00%	FROM NATIONAL HOLIDAYS-SAVINGS
	0.00%	CASH IN OF CD'S
3000.00	0.32%	FEES (INTERN REIMBURSEMENT)
1800.00	0.19%	INTEREST
5300.00	0.57%	PARKS & REC TOTAL
	0.00%	
	0.00%	PARKS, ARTS, & RECREATION
	0.00%	
900.00	0.10%	ELECTRICITY
13000.00	1.40%	HOLIDAYS-FIREWORKS-4th of July
	0.00%	REPAIRS
2500.00	0.27%	SERVICES-TREE TRIMMING-CONSULTANT
1500.00	0.16%	MATERIALS & SUPPLIES
1500.00	0.16%	LOG CABIN MAINTENANCE
300.00	0.03%	ALARM CONTRACT-MUSEUM
1300.00	0.14%	ICERINK/WARMING HSE LABOR & TEL
2200.00	0.24%	P&R - POTTIES
2500.00	0.27%	TRAIL MAINTENANCE
1200.00	0.13%	TRAIL SIGNS (JM/OAK KNOLL)
500.00	0.05%	FUEL-VEHICLE
300.00	0.03%	RED BRIDGE MAINT
3000.00	0.32%	MUSEUM INTERN
30700.00	3.31%	TOTAL EXPENSES
	0.00%	
	0.00%	ROADS INCOME
4500.00	0.49%	INTEREST
	0.00%	CASH IN OF CD'S
	0.00%	JACKSON MEADOW-SNOWPLOWING CONTRACT
	0.00%	JACKSON MEADOW-ENGINEERING REIMBURSEMENT
	0.00%	TEASDALE-SIGNS
	0.00%	MISCELLANEOUS
	0.00%	INSURANCE PAYMENT - PICKUP ACCIDENT
4500.00	0.49%	ROADS INCOME TOTAL
	0.00%	
	0.00%	ROADS EXPENSES
11500.00	1.24%	ELECTRICITY-STREETLIGHTS
3000.00	0.32%	FUEL-VEHICLES
	0.00%	FUEL HEATING
2000.00	0.22%	REPAIRS-VEHICLE & EQUIPMENT
500.00	0.05%	SERVICES-LEGAL
2500.00	0.27%	SERVICES-TREE TRIMMING AND BRUSHING
	0.00%	JACKSON MEADOW - EXPENSES

3500.00	0.38%	UNIFORM SUPPLIER
4500.00	0.49%	MATERIALS & SUPPLIES-SIGNS INCLUDED
3500.00	0.38%	ROAD REPAIR MATERIAL
1500.00	0.16%	TOOLS & EQUIPMENT
700.00	0.08%	MISC.EXPENSE-LICENSE
3500.00	0.38%	SALT AND SAND
3000.00	0.32%	SERVICES - ENGINEERING (OAK STREET)
	0.00%	STREET SWEEPING
500.00	0.05%	REPAIRS-BLDG-MAINT.
40200.00	4.34%	ROADS EXPENSE TOTAL
	0.00%	
	0.00%	GARBAGE & REFUSE INCOME
	0.00%	
44000.00	4.75%	BILLING
12000.00	1.29%	RECYCLING/COMPOSTING
17000.00	1.83%	G&R-COUNTY SOLID WASTE TAX
6000.00	0.65%	SALES TAX/SOLID WASTE SURCHARGE
79000.00	8.52%	GARBAGE AND REFUSE INCOME TOTAL
	0.00%	
	0.00%	GARBAGE & REFUSE EXPENSE
6000.00	0.65%	SALES TAX
17000.00	1.83%	COUNTY ENVIRONMENTAL TAX
48000.00	5.18%	HAULER
550.00	0.06%	FORMS & MAILING
	0.00%	
3000.00	0.32%	COMPOSTING
	0.00%	
74550.00	8.04%	TOTAL EXPENSES
	0.00%	
	0.00%	
	0.00%	WASTEWATER INCOME
	0.00%	
95087.00	10.26%	OPERATION & MAINT.
2500.00	0.27%	INTEREST
	0.00%	LATE CHARGE
	0.00%	IMPROVEMENT FEES
	0.00%	NEW HOOK-UPS
	0.00%	
97587.00	10.52%	WASTEWATER TOTAL INCOME
	0.00%	
	0.00%	WASTEWATER EXPENSES
3000.00	0.32%	EMERGENCY PUMPING
6500.00	0.70%	ELECTRICITY

2500.00	0.27%	FUEL-VEHICLE
	0.00%	FUEL-HEAT
3000.00	0.32%	SERVICES - LEGAL AND OTHER
	0.00%	SITE MAINTENANCE
600.00	0.06%	REPAIRS-BLDG&VEH
4200.00	0.45%	ADMINISTRATIVE LABOR (LJP)
17000.00	1.83%	SEWER PUMPING
6000.00	0.65%	EQUIP. REPAIR
4500.00	0.49%	MATERIALS & SUPPLIES
1500.00	0.16%	TELEPHONE-PAGER & DIALER
4000.00	0.43%	NEW EQUIPMENT
650.00	0.07%	LICENSE/PERMITS
2000.00	0.22%	WATER TESTS
600.00	0.06%	TRAINING
14000.00	1.51%	PW SUPERVISOR AND PART TIME
11000.00	1.19%	RESERVE FUND
	0.00%	P-1 GENERATOR
5000.00	0.54%	MONITORING WELL ABANDONMENT
5000.00	0.54%	REPLACEMENT/IMPROVEMENT
5000.00	0.54%	REPLACE ON-SITE SYSTEMS
	0.00%	
96050.00	10.36%	WASTEWATER EXPENSES
	0.00%	
	0.00%	WASTEWATER IMPROVEMENT INCOME
	0.00%	
22000.00	2.37%	QUARTERLY BILLING (over 5 years)
	0.00%	ONE-TIME CHARGE/TAX STATEMENT
	0.00%	RESERVE FUNDS
	0.00%	MISC
22000.00	2.37%	WASTEWATER IMPROVEMENT TOTAL INCOME
	0.00%	
	0.00%	WASTEWATER IMPROVEMENT EXPENSES
	0.00%	
25000.00	2.70%	BOND REPAYMENT
	0.00%	CONTRACTOR FEES
	0.00%	MATERIALS/SUPPLIES
	0.00%	GENERAL OBLIGATION BONDS
25000.00	2.70%	WASTEWATER IMPROVEMENT TOTAL EXPENSES
	0.00%	
	0.00%	JACKSON MEADOW WATER/WASTEWATER INCOME
	0.00%	
	0.00%	OPERATION & MAINT.
	0.00%	INTEREST

	0.00%	LATE CHARGE
	0.00%	NEW HOOK-UPS
	0.00%	WASTEWATER TOTAL INCOME
	0.00%	
	0.00%	
	0.00%	JACKSON MEADOW WATER/WASTEWATER EXPENSES
	0.00%	EMERGENCY PUMPING
	0.00%	ELECTRICITY
	0.00%	FUEL-VEHICLE
	0.00%	FUEL-HEAT
	0.00%	SERVICES - LEGAL AND OTHER
	0.00%	SITE MAINTENANCE
	0.00%	REPAIRS-BLDG&VEH
	0.00%	ADMINISTRATIVE LABOR (LJP)
	0.00%	SEWER PUMPING
	0.00%	EQUIP. REPAIR
	0.00%	MATERIALS & SUPPLIES
	0.00%	TELEPHONE-PAGER & DIALER
	0.00%	NEW EQUIPMENT
	0.00%	LICENSE/PERMITS
	0.00%	WATER TESTS
	0.00%	TRAINING
	0.00%	PW SUPERVISOR AND PART TIME
	0.00%	RESERVE FUND
	0.00%	REPLACEMENT/IMPROVEMENT
	0.00%	WASTEWATER EXPENSES
	0.00%	
	0.00%	
	0.00%	REPLACE/CAPITAL FUND
	0.00%	
7500.00	0.81%	P&R-VILLAGE CENTER(WATERFALL FENCE)
1000.00	0.11%	P&R-GARBAGE BIN HOLDERS
	0.00%	P&R-FENCE ALONG GETCHELL PROPERTY
5000.00	0.54%	P&R-BIKE TRAIL REBUILD-PARTIAL
	0.00%	P&R - PICNIC TABLES
2400.00	0.26%	P&R-RED BRIDGE REPAIR - GOAL 35000
DONE	0.00%	P&R-WISH LIST FOR MUSEUM(PAINTING)
0.00	0.00%	P&R-VILLAGE CENTER (PUBLIC RESTROOMS)
	0.00%	P&R-MUSEUM RESTORATION
15000.00	1.62%	GEN - HWY 95 VILLAGE CENTER SIGNAGE
0.00	0.00%	P&R-RIEBEL PROPERTY ACQUISITION
0.00	0.00%	P&R-VILLAGE CENTER BLOCK 8 ACQUISITION

0.00	0.00%	CEMETERY - RETAINING WALL
	0.00%	CEMETERY-SECURITY,FENCING,GATE
5000.00	0.54%	GEN - LAND/BLDG ACQUISITION
	0.00%	CEM- TREE CONSULTANT
	0.00%	CEMETERY-STONE REPAIR
0.00	0.00%	P&R-LUCY WINTON BELL DONATION
	0.00%	MARINE ELEM. REC.ACCOUNT-TENNIS CRT
0.00	0.00%	MARINE ELEM. REC.ACCOUNT-ICE RINK
12000.00	1.29%	PS-FIRE HALL - FLOOR RESURFACING
0.00	0.00%	PS-PAGER REPLACEMENT(YEAR 1 OF 3 YR GOAL)
13000.00	1.40%	PS-SIREN REPLACEMENT - GOAL \$21000.
0.00	0.00%	PS-TRAINING COMPENSATION
0.00	0.00%	PS-OFFICER COMPENSATION
		PS - THERMAL IMAGER
	0.00%	PS-AMBULANCE REPLACEMENT
	0.00%	PS-VILLAGE CENTER WATER SUPPLY
5800.00	0.63%	PSF - 800MGZ RADIOS
0.00	0.00%	PS - MILLPOND DREDGING
100000.00	10.79%	ROADS AND ALLEYS
500.00	0.05%	GEN-CITY OFFICE IMPROV/RECORDS MANAGEMNT
0.00	0.00%	GEN - PUBLIC LIBRARY/BLDG - GOAL 900000
2000.00	0.22%	GEN-CITY CLERK'S OFFICE
0.00	0.00%	GEN-EXTRA LABOR
0.00	0.00%	ROADS - PART TIME DEPUTY
	0.00%	ROADS - MOBILE RADIOS
	0.00%	ROADS - DUMP BED (PICKUP)
0.00	0.00%	ROADS - SPEED TRAILER
500.00	0.05%	ROADS - HISTORIC BRIDGE
DONE	0.00%	CEM - LAWN MOWER (GOAL \$7500)
10000.00	1.08%	ROADS-PICKUP-REPLACEMENT (GOAL \$40000)
0.00	0.00%	ROADS-RANGER MULE
21000.00	2.26%	PSF-PAYMENT ON NEW TRUCK (SEE O&M PSF)
DONE	0.00%	ROADS-DUMP TRUCK PAYMENT
	0.00%	ROADS - MAINTENANCE SHED ADDITION
	0.00%	ROADS-SECURITY CAMERAS/SHOP AND JM
	0.00%	
200700.00	21.65%	TOTAL REPLACEMENT FUND
	0.00%	
	0.00%	
632550.02	68.22%	GENERAL
12243.00	1.32%	HALL
62033.13	6.69%	PUBLIC SAFETY

4500.00	0.49%	ROADS
12000.00	1.29%	CEMETERY
79000.00	8.52%	GARBAGE & REFUSE
5300.00	0.57%	PARKS & RECREATION
22000.00	2.37%	WASTERWATER IMPROVEMENT
97587.00	10.52%	WASTEWATER
	0.00%	ADJUSTMENT
927213.15	100.00%	TOTAL FUND INCOMES
	0.00%	
360313.15	38.86%	GENERAL
11000.00	1.19%	HALL
81700.00	8.81%	PUBLIC SAFETY
40200.00	4.34%	ROADS
7000.00	0.75%	CEMETERY
74550.00	8.04%	GARBAGE & REFUSE
30700.00	3.31%	PARKS & RECREATION
25000.00	2.70%	WASTEWATER IMPROVEMENT
96050.00	10.36%	WASTEWATER
	0.00%	ADJUSTMENT
726513.15	78.35%	TOTAL FUND EXPENSES
200700.00	21.65%	REPLACEMENT/CAPITAL FUND
	0.00%	ADJUSTMENT
927213.15	100.00%	TOTAL EXPENSES PLUS REPLACEMENT
	0.00%	
72800.00	7.85%	UNFUNDED LIABILITIES

Appendix 4

Carnelian Marine Watershed Budget

<u>Budget Item</u>	<u>Available Prior Year</u>	<u>Income Grants- Fees</u>	<u>Income Tax Levy</u>	<u>Total Budget</u>
Engineering			40,000	40,000
Administrator			80,000	80,000
Manager Expenses			15,000	15,000
Operations			33,000	33,000
Professional Fees			10,000	10,000
Subtotal Operating Budget			178,000	178,000
Carnelian Creek			10,000	10,000
Silver Creek			10,000	10,000
Channel Maintenance			10,000	10,000
Wetland Mgmt Plan			15,000	15,000
Met Council Outlet		4,000	6,000	10,000
Water Monitoring			70,000	70,000
BMP Program (resident cost share)			50,000	50,000
Long Lake Mgmt Plan			7,500	7,500
Sand Lake Mgmt Plan			7,500	7,500
Square Lk BMP Goose Lake Implementation			15,000	15,000

			10,000	10,000
Mill Stream Implementation			20,000	20,000
Rydeen Feed Lot, Lk Bmp			15,000	15,000
Falls Creek Restoration Joint LGU cost share projects			5,000	5,000
			20,000	20,000
Education & Outreach			31,000	31,000
Interest	1,000			1,000
Conservation Easements			10,000	10,000
Rules Update			10,000	10,000
Environmental Analysis Plan Amendment / Update	25,000		10,000	35,000
Subtotal- Projects	25,000	5,000	342,000	372,000
Total Budget Submitted	25,000	5,000	520,000	550,000