
5. IMPLEMENTATION PLAN

5.1 GENERAL

This CSWMP provides a plan for managing the City’s surface water system, addressing problem areas, and protecting key water resources. The real measure of success of the CSWMP will be in its implementation, which covers a number of aspects:

- Administering regulations and programs
- Managing surface water as redevelopment and new development occur
- Implementing a public education program regarding stormwater management
- Operating and maintaining the surface water system
- Constructing prioritized capital improvements
- Financing projects and programs
- Providing a process for future amendments to the CSWMP

5.2 REGULATORY ADMINISTRATIVE RESPONSIBILITIES

The City wants to work cooperatively with the Sauk River Watershed District (SRWD) and Stearns County to share and support regulatory responsibility. The desire to share and support regulatory responsibility reflects the City’s recognition that the SRWD and Stearns County have technical expertise and staff resources to devote to a particular area and are able to maintain a broader, watershed-level perspective.

Table 4 shows who has primary responsibility for administration of specific regulations. The regulatory programs are listed on the left side of the table. An “X” shows which entity has primary responsibility for administering the particular regulatory program for the City. An “X” in both columns means a shared and/or supporting responsibility.



**Table 4. Regulatory Responsibilities (January 2004)
Stormwater Management and Related Issues
City of Cold Spring**

Regulation	Primary Responsibility		
	Stearns Cty	SRWD	City
Land Use (zoning, subdivision approval, etc.)			X
Grading			X
Wetland Conservation Act	X		
Stormwater rate control		X	X
Stormwater quality treatment		X	X
Fertilizer regulations			X
Erosion and sediment control			X
Illegal discharges to storm drainage system			X
Shoreland Management Zoning	X		X

5.3 REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT

Greater impervious coverage associated with new development or redevelopment activity places additional burdens on the storm drainage system by increasing the rate and volume of runoff. This change in hydrology, along with more intense land use activities that generate certain types of contaminants, increases the amounts of pollutants exported from a development site.

Expanded storm drainage systems are needed to serve the developed area, but these systems also provide a too efficient means of delivering more runoff and higher pollutant loads to downstream receiving waters. Unless these impacts are reduced, the risk of downstream property damage will be unacceptably high and receiving waters will be degraded over time as a result of development.

The City of Cold Spring recognizes its responsibility to protect property and priority water resources from adverse impacts due to increases in land use intensity caused by development and redevelopment activities. To minimize the adverse impacts on stormwater quantity and quality, certain types of development and redevelopment activity shall be subject to mitigation requirements.



5.3.1 Overview of New Development/Redevelopment Standards

Many of the goals and policies in Section 3 pertain to stormwater management requirements for new development and redevelopment projects – including road construction – within the City’s jurisdictional limits. In general, such projects are subject to requirements that fall into one or more of the following categories:

1. Construction erosion and sediment control measures
2. Stormwater rate control measures
3. Stormwater quality measures
4. Infiltration measures



Construction Site Erosion Control

Figure 7 contains a list of possible control measures, which, if properly designed, installed, and maintained, can be useful in meeting the prescribed requirements. It should be noted that all measures are subject to engineering review and approval by City staff for appropriate design and application. Also, it is the developer’s responsibility to provide credible estimates of performance for those control measures that must meet a specified quantitative performance standard.

It is important to note that the standards outlined in this section **do not** apply to maintenance actions. For the purposes of this section, maintenance actions must meet all the following requirements:

1. They will not result in a change in site/project impervious coverage.
2. They will not change the existing impervious footprint.
3. They will not substantially change the drainage pattern.
4. There will be no decrease in any rooftop footprint or rooftop impervious coverage.
5. Roadway projects that meet the following criteria:
 - a) The footprint of the road remains the same
 - b) There is no change from the rural section to curb and gutter.



Figure 7

List of Stormwater Control Measures¹

1. **Construction Erosion and Sediment Control Measures (CSEC) MEP²**
 - Silt fence
 - Rock entrance pads
 - Sediment basins
 - Seeding/mulching of disturbed areas
 - Buffer preservation
 - Designation/use of appropriate stockpiling areas
 - Establishment of/adherence to grading limits
 - Riprap
 - Conveyance channel stabilization
 - Sequencing

2. **Rate Control Measures MEP²**
 - Wet detention basins with extended detention
 - Dry basins with extended detention
 - Underground storage pipes/reservoirs
 - In-line storage
 - Impervious surface adjustment/reduction
 - Created depression/porous media storage (1- to 2-year events only)

3. **Water Quality Measures MEP²**
 - Wet detention basins
 - Manufactured water quality treatment devices (including swirl concentrators and oil/grit chambers)
 - Treatment wetlands
 - Infiltration (including infiltration basins, trenches, and rainwater gardens)
 - Filtration (includes collection of filtered water in underdrain)
 - Impervious surface reduction

4. **Infiltration/Volume Control Measures MEP²**
 - Rainwater gardens
 - Infiltration trenches
 - Swales
 - Vegetative buffers
 - Filter strips

¹ All measures subject to engineering review and approval by City staff for appropriate application and design. It is the developer's obligation to provide credible quantitative estimates of performance for measures in categories 2 – 4. For guidance on CESC measures, refer to MPCA Handbook "Protecting Water Quality in Urban Areas" (March 2000).

² To the Maximum Extent Practicable



5.3.2 Water Quantity Management

The City of Cold Spring adopts the following stormwater management plan design criteria for new development and redevelopment sites:

- (a) A hydrograph method based on sound hydrologic theory must be used to analyze stormwater runoff for the design or analysis of flows and water levels within and off the project site.
- (b) Stormwater discharge rates for the proposed project must not exceed the discharge rates for the 100-year, 24-hour rainfall event as listed in Appendix C.
- (c) Regional detention basins will be used to manage peak flow rates and meet water quality objectives where possible. On-site detention basins will be used when regional basins are not in place or are not feasible.
- (d) Analysis of flood levels, storage volumes, and flow rates for waterbodies and detention basins must be based on the 100-year, 24-hour rainfall event.
- (e) Detention basins must be designed to provide:
 - (1) An outlet structure to control the 100-year, 24-hour rainfall event the discharge rates list in Appendix C.
 - (2) An identified overflow spillway sufficiently stabilized to convey flows greater than the 100-year, 24-hour rainfall event.
 - (3) Side slopes of 6:1 down to the normal water level. If site constraints do not allow a 6:1 slope, the slope shall be no steeper than 4:1. City staff will determine if slopes steeper than 4:1 are reasonable based upon demonstrated need. Council will approve slopes steeper than 4:1 up to a maximum of 3:1 if a compelling need is found to exist.
 - (4) Turf establishment around the ponding basins using low-maintenance grasses to promote the reduction of maintenance mowing.
 - (5) Access for future maintenance.
- (f) The proposed project must not adversely affect water levels off the site during or after construction
- (g) Outfall structures within wetlands and public waters must incorporate a stilling basin, surge basin, energy dissipater, placement of ungrouted natural rock riprap, or other devices to minimize disturbance and erosion of natural shoreline and bed resulting from stormwater discharges.



Stormwater Detention Basin



(h) All new residential, commercial, industrial and other habitable or non-habitable structures must be constructed so that the lowest opening elevations are a minimum of two feet above the 100-year high water elevation and are one foot above the overflow elevation of nearby surface waterbodies, wetlands, and stormwater basins. Within landlocked basins, lowest floor elevations must be at least one foot above the surveyed basin overflow elevation.

(i) In the Brewery Creek Subdistrict, development resulting in the creation of impervious surfaces that affects Brewery Creek directly must, to the maximum extent practicable, address use of best management practices (BMPs) to (1) limit the loss of pervious area, and (2) infiltrate runoff which does occur from impervious areas to the extent feasible considering site-specific conditions. BMPs include the use of:



***Infiltration Basins Reduce Runoff
and Recharge the Groundwater***

- Vegetated swales
- Pond outlets perched above groundwater levels
- Infiltration systems
- Roof drainage to pervious areas
- Minimum of twenty percent pervious surface
- Depressed/casual storage areas
- Deep-rooted native vegetation
- Narrower urban roads. (This is only one option and will require Council approval)

The goal of these BMPs is to incorporate practices into the design that are capable of infiltrating the impervious surface runoff from the median storm (0.3 inches) within seventy-two hours. Infiltration volume will be calculated using the appropriate hydrologic soil group classification and saturated infiltration rate from the table below.

Hydrologic Soil Group: Infiltration Rate – Soil Texture:

A: 0.50 in/hr – sand, loamy sand, or sandy loam

B: 0.25 in/hr – silt loam or loam

C: 0.10 in/hr – sandy clay loam

D: 0.03 in/hr – clay loam, silty clay loam, silty clay, or clay

(Source: Urban Hydrology for Small Watersheds, SCS, June 1986.)



Infiltration area will be limited to the horizontal areas subject to prolonged wetting.

Areas of permanent pools tend to lose infiltration capacity over time and will not be accepted as an infiltration practice.

(j) All stormwater management structures and facilities must be properly maintained in perpetuity to ensure that they continue to function as originally designed. This maintenance responsibility must be assumed either by the municipality accepting the required easements dedicated to stormwater management purposes, or by the applicant executing and recording a maintenance agreement acceptable to the City.

4. REQUIRED EXHIBITS. The following exhibits must accompany the preliminary plat or general land use applications. One full size set of each, and two sets reduced to a maximum of 11"x17" are required.

(a) Property lines and delineation of lands under ownership of the applicant.

(b) Delineation of the subwatershed contributing runoff from off-site, proposed and existing subwatersheds on-site, emergency overflows, and drainageways.

(c) Proposed and existing stormwater facility locations, alignment, and elevation.

(d) Delineation of existing on-site wetlands, marshes, shoreland, and/or floodplain areas.

(e) Identification of existing and proposed normal, ordinary high, and 100-year high water elevations on-site.

(f) Identification of existing and proposed site contour elevations related to NGVD, 1929 datum.

(g) Construction plans and specifications of all proposed stormwater management facilities, including design details for outlet control structures.

(h) Stormwater runoff volume and rate analyses for the 100-year rainfall events, for both existing and proposed conditions.

(I) All hydrologic, water quality, and hydraulic computations completed to design the proposed stormwater management facilities.

(j) Narrative addressing incorporation of infiltration BMPs.



(k) Delineation of any ponding or flowage easements or other property interest dedicated to stormwater management purposes.

5. PLATTING OR EASEMENT DOCUMENTS. Applicant must provide platting or easement documents showing sufficient drainage and ponding/flowage easements over hydrologic features such as floodplains, storm sewers, ponds, ditches, swales, wetlands, and waterways.

Section 3, Goals and Policies, also contains important information on water quantity management.

5.3.3 Water Quality Management

This CSWMP does not include a stormwater quality analysis component; however, principles of proven water quality measures have been incorporated into the Goals and Policies, and Implementation plan. These measures are included as a qualitative approach using typical design parameters and pollutant reduction rates as the guide. The City of Cold Spring adopts the following rules pertaining to water quality mitigation requirements for new and redevelopment projects:

(a) Permanent sedimentation and water quality ponds are required and must be designed to provide: (These may be incorporated into a stormwater detention pond)

(1) Water quality features consistent with NURP criteria.

(2) A permanent wet pool with dead storage at least equal to the runoff from a 2.5" rainfall over the area tributary to the pond or 1.5" rainfall for sediment forebays upstream of Types 1 and 2 wetlands.

(3) An outlet structure capable of preventing migration of floating debris and oils for at least the one-year rainfall event.

(4) A 10' aquatic bench at a 10:1 slope implemented below the normal water level.

(5) Side slopes below the aquatic bench of 4:1 (3:1 with Council approval).

(6) Access for future maintenance.



- (b) Developers/landowners are required to comply with all elements of this CSWMP and other pertinent federal, state, and local regulations for on-site stormwater management.

5.4 EDUCATION

5.4.1 General

Education plays an important role in any effort to implement a stormwater management program like the one outlined in this CSWMP. The objectives of an education effort are different, depending on the target audience. In general, the target audience for this education program is City staff, City residents, and the development community. The following sections describe why education of each of these groups is important and presents educational methods for each that the City is or may begin using.

5.4.2 City Staff

City Staff have a wide range of responsibilities for implementing this plan. These include:

- Implementing street sweeping and spill response programs.
- Maintaining detention basin/stormwater management pond performance and system operability.
- Planning for and managing projects to enhance pollutant removal performance, wetland quality, etc.
- Carrying out grounds maintenance of City-owned lands/facilities in a way that sets a good example for residents.
- Using BMPs in application of ice control material.
- Application of Best Management Practice policies and regulations to new and redevelopment projects.
- Planning and delivering education programs.
- Working out cooperative arrangements with regulatory and non-regulatory organizations to achieve CSWMP objectives.
- Assisting the City Council in the application of the CSWMP policies.



Because these responsibilities involve many different levels of City staff, City staff members are trained to have a basic understanding of the CSWMP, including:

- A description of the major stormwater management issues (including known stormwater management problem areas, stormwater management expectations for new and re-development projects, incorporation of stormwater mitigation into capital improvement projects, and regulatory jurisdictions).
- The objectives of the CSWMP and the general approach outlined in the CSWMP for resolution of these issues.
- The responsibilities of the different work units in implementing the CSWMP.
- The information the CSWMP provides.
- Identification of in-house, cooperative agency or retained experts.

This information is disseminated in presentations at staff meetings, coverage in internal newsletters, and issuance of internal memos.

5.4.3 City Residents

In order to obtain the necessary political and economic support for successful CSWMP implementation, it is vital to inform City residents about basic stormwater management and water quality concepts, policies, and recommendations in the CSWMP, and the progress of stormwater management efforts.

For example, the City has incorporated stormwater management practices into a number of new utility and utility reconstruction projects that benefit stormwater quality in the watersheds of some of the City's most precious resources. It is important that residents know about these projects (including how they were funded) so that they develop an awareness that the City is being responsive to the public interest in protecting these high priority resources and that dedicated financial resources are being put to work.



This information can be presented to the public through the City newsletter, press releases to local papers, and at public meetings as appropriate. Periodic updates on the progress of CSWMP implementation and information on specific improvement projects should also be provided to the public. Again, the City newsletter and press releases to local papers are good information dissemination methods.

Education projects focused on stormwater quality and water quality in general have received increasing attention and interest from the public over the last decade. Specific education projects that have been used successfully in the metro area and are being considered by the City include:

- Catch basin stenciling/door hanger distribution — Helps provide recognition of the direct connection between the City storm drainage system and many of the community's lakes and wetlands. The door hangers further explain this connection and why it is important to keep vegetation material, fertilizer, pet litter, and chemicals off hard surfaces and out of the storm drainage system.
- Lawn soil testing — This activity involves the collection and analysis of soil samples from lawns throughout the City to determine whether additional phosphorus is needed for good turf growth. The results would be helpful in determining to what degree low and no-phosphorus fertilizer use should be promoted in the City.
- No-phosphorus fertilizer sales. If soil test results from many residential areas are correct, it is likely that a significant percentage of lawn soils tested will indicate no additional phosphorus is necessary for good turf growth.

The City may work with lawn and garden retailers to encourage the supply of zero-phosphorus fertilizers. In addition, there will be a need to continue to educate the residents on the statewide fertilizer legislation passed by the 2002 Legislature that will go into effect in January 2004.



- Lake, river, and creek information kiosks. Those who enjoy and use a resource are likely to be highly receptive to information on the condition of the resource and what is needed to protect it. Through the construction of individual or joint lake, river, and creek information kiosks in strategic places, important water quality and other information would be presented at the “point of use/enjoyment.” Watershed characteristics (size, boundary), along with suggestions for residents to reduce their pollutant contributions, could be combined with information about the waterbody itself (such as fishing, boating, and other recreational opportunities).
- Brochures. There are numerous excellent brochures available that could easily be customized for the City of Cold Spring. Distribution could be accomplished through direct mailings, as a fold-in to the City newsletter, door-to-door distribution by volunteers, etc.

The City will join efforts with the SRWD to develop and execute educational activities in order to increase the cost-efficiency of the program, avoid duplication of effort, and ensure delivery of consistent messages across the City.

5.4.4 Development Community

Because Cold Spring is a developing City, the CSWMP’s primary impact is on development activities. The CSWMP is designed to provide the official policy direction that City staff and the City Council desire to guide stormwater mitigation for both new and redevelopment projects.

The information about mitigation requirements is disseminated to developers and their consulting engineers as early as possible in the development review process. In this way, developers know what is expected of them and can consider the requirements in their initial site assessments as well as incorporate the necessary BMPs in any subsequent designs. Much of the necessary information should be provided to developers in a packet in the development submittal information they receive from the City. The information packet should contain:

- Information from this section on the regulatory administrative responsibilities for developments or redevelopments.



- Any information on areas of the City where special regulations may apply because of the existence of special issues or concerns.

While dissemination of the information above through an standard packet is valuable, there is no substitute for a meeting between key City staff and the developer as early as possible in the review process. This helps define expectations for submittals, clarify regulatory compliance issues, and provide additional detailed guidance. Developers are encouraged to do this as soon as possible after they have reviewed and thought about the written information cited above and how it applies to their site.

5.5 OPERATION AND MAINTENANCE

5.5.1 Stormwater Basins

Stormwater basins represent a sizable investment in the City's drainage system. General maintenance of these facilities helps ensure proper performance and reduces the need for major repairs. Periodic inspections are performed to identify possible problems in and around the basin. Inspection and maintenance cover:

- Basin outlets
- Basin inlets
- Side slopes and mowing
- Illicit dumping and discharges
- Sediment buildup

Basin Outlets

A key issue with stormwater basins is ensuring that the outlets perform at design capacity. Annual inspection and maintenance of basin outlets is designed to help ensure:

- The area around outlets is kept free and clear of debris, litter, and heavy vegetation.
- Outlets with access hatches are secured and operable.



- Trash guards are installed and maintained over all outlets to prevent clogging of the downstream storm sewer.
- Trash guards are inspected at least once a year, typically in the spring, to remove debris that may clog the outlet. Problem areas are addressed more frequently, as required.
- Emergency overflow outlets are provided for all ponds when possible. These are kept clear of debris, equipment, and other materials and properly protected against erosion.

Basin Inlets

Annual inspection and maintenance of basin inlets address:

- Erosion: Where erosion occurs near an inlet, energy dissipaters or riprap are installed.
- Sediment deposits, which can form at the inlets due to poor erosion practices upstream: Where sediment deposits occur, these are removed to ensure design capacities of storm sewers entering the basin are maintained.

Side Slopes and Mowing

On-going inspection and maintenance of basin side slopes will help ensure:

- Side slopes are kept well-vegetated to prevent erosion and sediment deposition into the basin. Severe erosion along side slopes can reduce the quality of water discharging from the basin and require dredging of sediments from the basin.
- Noxious weeds are periodically removed from around basins.
- Buffer strips are preserved. Some basins in highly developed areas require mowing. If mowing is performed, a buffer strip of 20 feet or more adjacent to the normal water level should be maintained. This provides filtration of runoff, protects wildlife habitat, and discourages migratory waterfowl from straying onto adjacent lands and leaving nuisance waste behind.



Illicit Dumping and Discharges

Inspection and maintenance for illicit dumping and discharges into basins address:

- Illicit dumping or discharges, the most common of which is dumping of yard waste into the basin.
- Removal of illicit material and posting signs as needed prohibiting the dumping of yard waste.
- Oil sheens: These can be present where waste motor oil is dumped into upstream storm sewers.
- Installation of Skimmer structures as needed at outlet structures to prevent oil spills and other floatable material from being carried downstream.
- Periodic inspection of Skimmer structures for damage, particularly from freeze-thaw cycles.

The City's existing spill response program shall include preventing the discharge of spilled toxic or hazardous materials into the storm sewer system.

Sediment Buildup

Inspection and maintenance of sediment buildup in basins address:

- Sediment buildup: which can cause significant loss of storage capacity from design levels. Excessive sediment buildup significantly reduces the stormwater treatment efficiency of water quality ponds.
- Sediment removal: Performed where excessive sediment buildup has occurred. As a general guideline, ponds require dredging every 15 to 20 years.

5.5.2 Storm Sewer Inlet Structures

To fully use storm sewer capacity, inlet structures are kept operational in order to get runoff into the system. All efforts are made to keep catch basins and inlet flared ends free of debris and sediments so as not to restrict inflow and cause flood damage. Leaf and lawn litter are the most frequent cause of inlet obstructions. On a routine basis, City staff visually inspects inlet structures to ensure they are operational.



5.5.3 Open Channels

Overland flow routes constitute an important part of the surface water drainage system. Open channels are typically vegetated and occasionally lined with more substantial materials. The lined channels typically require little or no maintenance. Vegetated channels are periodically inspected and maintained, as high flows can create erosion within the channel.

Eroded channels can contribute to water quality problems in downstream waterbodies as the soil is continually swept away. If not maintained, the open channel erosion would accelerate and repair would become increasingly more costly.

5.5.4 Piping System

The storm sewer piping system constitutes a multimillion-dollar investment for the City. The City performs a comprehensive maintenance program to maximize the life of the facilities and optimize capital expenditures. The following periodic inspection and maintenance procedures are followed:

- Catch basin and manhole castings are inspected and are cleaned and replaced as necessary.
- Catch basin and manhole rings are inspected and are replaced and/or regouted as necessary.
- Catch basin and manhole structures are inspected and are repaired or replaced as needed. Pipe inverts, benches, steps (verifying integrity for safety), and walls are checked. Cracked, deteriorated, and spalled areas are grouted, patched, or replaced.
- Storm sewer piping is inspected either manually or by television to assess pipe condition. Items looked for include root damage, deteriorated joints, leaky joints, excessive spalling, and sediment buildup. The piping system is programmed for cleaning, repair, or replacement as needed to ensure the integrity of the system.



5.5.5 De-Icing Practices

Central Minnesota receives approximately 45 inches of snow during a typical year. This requires a large amount of de-icing chemicals (primarily salt) to be applied to roads and sidewalks each winter.

Estimates indicate that 80 percent of the environmental damage caused from de-icing chemicals is a result of inadequate storage of the material (MPCA 1989). Improper storage as well as overuse of salt increases the risk of high chloride concentrations in runoff and groundwater. High chloride concentrations can be toxic to fish, wildlife, and vegetation.

The following procedures are recommended for storing de-icing chemicals in the City.

1. De-icing material is stored in waterproof sheds. Where this is not possible, stockpiles are covered with polyethylene and placed on impervious surfaces.
2. Road de-icing stockpiles are not located near municipal well areas or in other sensitive groundwater areas.
3. Runoff from stockpiles is not allowed to flow directly into streams or wetlands where environmental damage can occur.

Cold Spring has established general snow and ice removal procedures to address winter maintenance needs. Street conditions are assessed for each individual event and ice control material application is adjusted accordingly. Equipment is maintained in good working order to place ice control material on roadways and is properly calibrated to prevent excessive application.

5.5.6 Street Sweeping

Street sweeping is an integral part of the City's effective surface water management system. It greatly reduces the volume of sediments that have to be cleaned out of storm water structures and downstream waterbodies. The City has a street sweeping program that includes two sweeping operations in a year. Spring sweeping begins either late March or early April after the risk of later snowfall has passed. Fall sweeping commences mid-August and is typically completed by Labor Day weekend. Stormwater quality areas are swept on a priority basis throughout the year.



Cold Spring should educate the public that sweeping yard waste into the streets is detrimental. This can greatly reduce the incidence of inlet blockages and protects the water quality of downstream waterbodies.

The objective of both the de-Icing and street sweeping programs is to minimize impacts from leaf litter, sand, salt, and other debris on the surface waters of the City.

5.5.7 Detection of Illicit Connections

In preparation for possible NPDES regulation changes, a program to detect illicit connections to the City's drainage system should be implemented. This program involves inspection of storm sewer outfalls during dry weather periods to identify possible illegal dumping or connections to the storm sewer system. Inspection should be prioritized by focusing on industrial and commercial areas, and then extended into residential areas.

The location of almost all existing major outfalls is identified in the field and indicated on the City's storm sewer basemap. A major outfall is defined as follows:

- Non-industrial Areas – a storm sewer pipe outlet with a diameter greater than 36 inches or a conveyance structure draining 50 or more acres.
- Industrial Areas – A pipe outlet with a diameter of 12 inches or more or a structure draining two or more acres.

If dry weather flows are detected and illicit connections could be the source of the flow, a grab sample should be collected for analysis to determine if pollutants are present. All data collected under this program should be saved in an organized fashion. This information will then be valuable in future NPDES permitting requirements for the City.



5.6 CAPITAL IMPROVEMENT PROGRAM

The City's existing surface water system is largely at or near capacity. The majority of new surface water systems will be constructed associated with development. There are few storm sewer system projects that are necessary due to pipes being under capacity or where system redesign is contemplated. Therefore, the Capital Improvement Program (CIP) is fairly light for City initiated projects.

A prioritized capital improvement program is presented in Table 5. It contains the improvements recommended in Section 4 and Appendix D for problem areas as well as miscellaneous other improvements planned by the City. Subsequent review and approval of individual projects will be required prior to actual implementation.

Table 5. Capital Improvement Program

1. Trunk Highway 23: A trunk storm sewer pipe will need to be extended across TH 23 near the south end of 14th Avenue South. This trunk storm sewer pipe will provide an outlet for a regional pond near this location. Timing – When crossing of 14th Avenue is undertaken or development occurs to the south.
2. Chapel Street Trunk Storm Sewer: This existing street has a rural design that allows runoff to flow in the roadway ditches to Trunk Highway 23, then into the Sauk River. A trunk storm sewer pipe is being proposed to serve the runoff on Chapel Street, plus storm water being discharged from ponds in upstream basins. Chapel Street has a steep grade and a storm sewer pipe would help with the erosion along the roadway. Timing – With upstream improvement of Chapel Street.
3. Brewery Crossings: There are multiple Brewery Creek Crossings that should be upgraded to handle a 100-year runoff event. These crossing are at 2nd Street North and 2nd Avenue North. Further study would be needed to adequately design these structures. A cost is not included in the report for these structures. Timing – With major upgrades to affected streets.
4. Golf Ponds: Existing ponding areas will need to be increased to handle runoff for future developments. Ponds 11 & 12 in the Golf Course Watershed are proposed to be increased to provide adequate water treatment prior to discharging into the Sauk River. Timing –as necessitated by further development.



5. 1st Street South – Trunk Storm Sewer Replacement: The size of the existing storm sewer pipe will need to be increased as part of a reconstruction project. The existing pipes do not meet the current design standards for storm sewer pipe. Timing – Coordinate with street reconstruction

5.7 FINANCING

Several methods of financing the proposed projects and programs in this CSWMP are available. Those recommended are:

- **Special assessments:** Assessments against benefiting or responsible properties can be used to finance surface water improvements. These are used for storm sewer lateral pipes and structures.
- **Area and connection charges:** These are fees charged to developments on an area (cost per acre) basis. These charges are frequently used in developing communities to ensure that new development pays for facilities required to serve it. In Cold Spring, charges should be levied against both development and redevelopment property in a similar manner. The rates are presented in Table 6 below. These rates are developed based on the total cost of the trunk improvements divided by the number of developable acres within the study area.

Developable area is defined as those areas that are not delineated wetlands, open water-bodies; or State or County Rights of Way. The rates are prorated based on the amount of runoff attributed by each land-use type shown. Cost estimates for the trunk improvements shown in Appendix D include construction of the recommended facilities and associated appurtenances. Engineering costs, capitalized interest, administrative costs, and contingencies are included in the cost estimates. Cost estimates are based on a November 2003 ENR Construction Cost Index of 6,794.25. Future changes in the index are expected to reflect cost changes in the proposed facilities. The trunk rates should be increased according to the ENR index at the beginning of each subsequent year.

- **Grants:** Though subject to budgetary constraints, a number of state and other grant programs are available for surface water management.



There is another revenue source that could be considered in the future to help offset operation, maintenance, and rehabilitation costs of the storm sewer system. This source is a Storm Water Utility. With this system, a user fee is charged to existing properties based on an estimate of runoff generated and discharged to the City's system. The revenues collected are dedicated to the surface water system.

Table 6. Trunk Storm Sewer Assessment Rates

Land Use	Cost/Dev Acre
Single Family	\$ 3,676
Multi-Family	6,292
Commercial	8,400
Industrial	8,400
Open Space	2,627
Recreational	2,627

5.8 AMENDMENT PROCEDURES

The Cold Spring CSWMP is intended to extend through the year 2013 at a minimum, before an update should be considered. For the plan to remain dynamic, an avenue must be available to implement new information, ideas, methods, standards, management practices, and any other changes that may affect the intent and/or results of the CSWMP. The amendment procedure for the CSWMP is presented below.

Request for Amendment

Written request for plan amendment is submitted to or by City staff. The request shall outline the need for the amendment as well as additional materials that the City will need to consider before making its decision.

Staff Review of Amendment

A decision is made as to the validity of the request. Three options exist: 1) reject the amendment, 2) accept the amendment as a minor issue, with minor issues collectively added to the plan at a later date, or 3) accept the amendment as a major issue, with major issues requiring an immediate amendment. In acting on an amendment request, City staff shall recommend to City Council whether or not a public hearing is warranted.



Council Consideration

The amendment and the need for a public hearing shall be considered at a regular or special Council meeting. Staff recommendations should also be considered before decisions on appropriate action(s) is/are made.

Public Hearing and Council Action

This step allows for public input based on public interest. Council shall determine whether a public hearing should occur in the process. Based on the public hearing and Staff input, the City Council will act on the amendment request.

5.9 ANNUAL REPORT TO COUNCIL

A brief report (every 3-5 years) will be made by City staff occasionally that summarizes development changes, capital improvements, and other water management-related issues that have occurred over the past year. The review will also include an update on available funding sources for water resource issues. Grant programs are especially important to review since they may change annually. These changes do not necessarily require individual amendments. The report can, however, be considered when the plan is brought up to date. The annual report should be completed by July 1st to allow implementation items to be considered in the normal budget process.

The City's CSWMP will remain in effect at least through 2015 unless an earlier plan update is required due to future needs. The City will then review the CSWMP for consistency with current water resource management methods. At that time, all annual reports and past amendments will be added to the document. Depending on the significance of changes, a new printing of the CSWMP may be appropriate. At a minimum, the Capital Improvement Program should be amended every five years.

