The City of Ramsey
Update Surface Water Management Plan (SWMP)
Ramsey, Minnesota
Project 14-31

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

EPB REVIEW

By: _____

Leonard L. Linton, P.E.

Date: ~~February 20, 2015~~March 6, 2015 Registration No. 21112

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

EPB REVIEW

_____

Bruce Westby, PE

Date: ~~February 20, 2015~~March 6, 2015 License No. 40116

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TABLE OF CONTENTS

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FIGURES

APPENDICES

Appendix A - Ordinances
Appendix B - Ramsey Storm Water Pollution Prevention Plan
Appendix C - Comment Letters

I. PURPOSE OF PLAN

The purpose of this Surface Water Management Plan (SWMP) is to promote, preserve and enhance the natural resources within the City of Ramsey. The City will protect water quality and unique and fragile environmentally sensitive land from adverse effects that can potentially be caused by poorly sited development or incompatible activities. The City proposes to accomplish this by regulating land disturbances and development activities.

Minnesota Rules Chapter 8410 (Metropolitan Area Local Water Management) requires specific elements to be addressed in local water management plans. The various chapters of this report are designed to address each element required under these rules. In addition, this plan follows the Metropolitan Council's 2030 Water Resources Management Policy Plan requirements.

In 2002, the Minnesota Pollution Control Agency designated the City of Ramsey as a mandatory Municipally Separate Storm Sewer System (MS4) community needing to submit a National Pollutant Discharge Elimination System (NPDES) permit regulating its storm water runoff. As such, the City submitted a Storm Water Pollution Prevention Plan (SWPPP) with its permit application in 2003. Accordingly, an additional purpose of this SWMP is to control or eliminate storm water pollution. Key contributors to storm water pollution are soil erosion and sedimentation. The city-wide SWPPP includes ordinance changes that address erosion control, sedimentation associated with construction activities as well as illicit discharges to surface waters, all primary contributors of storm water pollution. The MPCA is in the process of reviewing the City's SWPPP. Any changes requested by the MPCA should be incorporated into the final SWMP.

The City's goal is to minimize conflicts and encourage compatibility between land disturbing activities, water quality and environmentally sensitive lands. This will be accomplished through detailed development ordinances, plan review standards and recommended pollution control procedures in an effort to strike a balance between urban growth and the protection of water quality and natural areas. This SWMP, in conjunction with the policies set forth in the City ordinances, establishes standards and specifications for conservation practices and planning activities to minimize storm water pollution, soil erosion and sedimentation.

This submittal is a culmination of research, mapping, land use analysis/planning and hydraulic design. The end product is a detailed design tool that can be used by the City of Ramsey in planning growth and infrastructure replacement. This summary report represents only a small part of the total work product created through the master planning process. The current City ordinances have also been revisited as part of this process, as they are the best means to implement the recommendations made in this report.

Following the approval of this SWMP and ordinances by the Lower Rum River Watershed Management Organization (LRRWMO), the City will have administrative authority for the approved SWMP and ordinances. The City will also have the duty to enforce the SWMP and associated ordinances. The City places a high priority in improving impaired waters and intends to work with the LRRWMO and other agencies to achieve water quality goals by reducing the impact created by the City.

II. EXECUTIVE SUMMARY

A. Plan Purpose and Background

Storm water regulations have changed significantly since the original Comprehensive Storm Drainage Plan was approved in 1980 and the southeast growth area was revisited in 1997 and 2002. The plan was updated in 2008 and renamed the Storm Water Management Plan. The following is a listing of those regulatory changes:

1. 1982

   The *Metropolitan Surface Water Management Act* was passed. The Act was originally included in Chapter 509. The Act was recreated and modified in 1990 and became Minnesota Statue 103B.205 to 103B.255.

   Originally, the former Water Resources Board oversaw implementation of the act. When that board was merged with two other boards to form the Minnesota Board of Water and Soil Resources in 1987, the Board of Water and Soil Resources assumed responsibility for the act. Forty-six watershed management organizations (36 joint powers Watershed Management Organizations and 10 Watershed Districts) were originally responsible for preparing plans to:

   - protect, preserve, and use natural surface and groundwater storage and retention systems
   - minimize public capital expenditures needed to correct flooding and water quality problems
   - identify and plan for means to effectively protect and improve surface and groundwater quality
   - establish more uniform local policies and official controls for surface and groundwater management
   - prevent erosion of soil into surface water systems
   - promote groundwater recharge
   - protect and enhance fish and wildlife habitat and water recreational facilities
   - secure the other benefits associated with the proper management of surface and groundwater. [1]

2. 1985

   The Lower Rum River Water Management Organization (LRRWMO) was formed to meet the requirements of the Metropolitan Surface Water Management Act.

[1] Excerpt taken from the Minnesota Board of Water & Soil Resources Website: http://www.bwsr.state.mn.us/watermgmt/metroareasurface.html

3. 1987

The Federal Clean Water Act was amended to address storm water as a pollution source. This resulted in the EPA developing a NPDES Phase I permit that targeted Cities with populations in excess of 100,000. As a result, in 1991, Minneapolis and St. Paul were required to apply for permits. One permit requirement was the development of a city-wide Storm Water Pollution Prevention Plan (SWPPP) that included approximately 30 mandatory Best Management Practices (BMPs) addressing everything from education and good housekeeping for municipal operations to mandatory city ordinances.

4. 1991

The Minnesota Legislature passed the Wetlands Conservation Act (WCA). The WCA is administered according to Minnesota Rules Chapter 8420 to implement the purpose of the Act, which is to:

- Achieve no net loss in the quantity, quality, and biological diversity of Minnesota's existing wetlands
- Increase the quantity, quality and biological diversity of Minnesota wetlands by restoring or enhancing diminished or drained wetlands;
- Avoid direct and indirect impacts from activities that destroy or diminish the quantity, quality, or biological diversity of wetlands
- Replace wetland values where avoidance of activities is not feasible and prudent. [2]

5. 1992

The Board of Soil and Water Resources (BWSR) developed Minnesota Rules Chapter 8410. This set of rules consists of 18 parts that define the scope, general structure and content required for BWSR approval of a Local Surface Water Management Plan. The table of contents of this report and the content within each chapter has been structured to meet MN Rule 8410 as well as the specific requirements of the City of Ramsey.

6. 2003

NPDES Phase II, the second round of the 1987 Federal Clean Water Act amendment, targeted cities with populations over 10,000. The City submitted a permit application and SWPPP in accordance with MPCA deadlines.

The City finalized its most recent SWPPP in 2013. That SWPPP is attached in Appendix B to this report.

[2] Excerpt taken from the University of Minnesota Duluth website: http://www.d.umn.edu/fm/safety_envir/wetlands/pdf_pages/4.0%20Wetland%20Regulations.pdf

7. 2005

The Metropolitan Council has requirements for local water management plans.

This Surface Water Management Plan Update is designed to address current requirements governing local water management plans. The general boundary of the plan includes all property within the City limits of Ramsey. When accepted by all local, regional, state and federal agencies having jurisdiction, the City of Ramsey will be the sole responsible party for administering this plan.

8. 2012

The Lower Rum River Watershed Management Organization adopted their Third Generation Plan. The new plan requires infiltration for new and redeveloped sites, use of the Atlas-14 rainfall distributions and reductions in Total Suspended Solids (TSS) and Total Phosphorus (TP) for runoff discharged from new permitted projects.

B. **General Content of Required Local Plans**

This SWMP follows the general report structure listed in Minnesota Rules Chapter 8410.0170, the general requirements in Minnesota Statute sections 103B.205 - 103B.255, and the Metropolitan Council's requirements for local water management plans as adopted May 2005 as part of the Metropolitan Council's *Water Resources Management Plan.*

C. **Summary of the Goals, Problems, and Potential Solutions**

The general findings of this Surface Water Management Plan report are summarized as follows:

1. Ramsey is located in the Anoka Sand Plain. The area is well known for its highly permeable soil. As such, the runoff from significant rainfalls is generally reduced to the extent that the existing drainage network functions well with no significant flooding outside the Mississippi River, Rum River, Trott Brook, Ford Brook, County Ditch 43 and County Ditch 66 flood plains.

   Because of the pervious nature of the Anoka Sand Plain, the City will need to review its development ordinances to mitigate the adverse effect that a significant increase in impervious surfacing and mass grading can have on runoff conditions. The addition of significant amounts of impervious surfaces and the reduced permeability associated with the soil compaction in mass grading without a reasonable attempt to restore or duplicate the current infiltration pattern could create very significant increases in runoff volumes and downstream flooding. This is especially true in the Trott Brook, D66, EMiss and WMiss watersheds (see Figure 9), where improvements in uppermost watershed limits must flow a significant distance to the ultimate watershed outlet. The longer flow path associated with each of these watersheds allows greater opportunities for peak flows from conventional detention ponds to coincide.

   One solution to the problem of coincident peak flows is the use of low impact development techniques. The current low-density residential developments in northern Ramsey are a close approximation of what a low impact development can be like. This area has a noticeably lesser storm water impact than that of

either high-density residential developments or commercial/industrial developments.

This report recommends modifying the current development ordinances to encourage infiltration and soil ripping of mass grading to compensate for lost infiltration conditions as well as requiring oversized retention ponding to mitigate and compensate for increases in runoff. Innovative solutions to the storm water runoff increases associated with the increase in impervious surface will be investigated and encouraged when deemed appropriate. Potential solutions include pervious pavements, rain gardens, infiltration basins and low impact development among others.

2. An integral part of this SWMP is updating the comprehensive storm water runoff modeling performed in 2008. The 2008 modeling effort captured the existing conditions throughout the entire city. This modeling includes:

   a. Mapping out the small watersheds draining to general collection points such as low points in roadways and intersections, wetlands or ponds.

   b. Estimating the runoff from the 2, 10 and 100-year rainfall events.

   c. Routing the runoff through the existing system.

   The existing system may be a pipe network, a pond, a wetland or a waterway. The modeling predicts the high water levels and flows associated with each rainfall event modeled.

   This modeling provides a baseline for comparison purposes as new developments change the drainage pattern. With this modeling information, City staff can readily review the cumulative impacts of large developments for effects on the baseline conditions across the entire watershed.

   Storm and Sanitary Analysis (SSA) software was used in the comprehensive modeling. This software is based on the industry standard EPASWMM process and the St. Vennant equations. The model can be used to input actual rainfall events from rain gauges and can model the transport of pollutants through the system. This will be very useful in evaluating the BMP measures to address future TMDLs.

3. Where the cumulative effect of regulated development is potential flooding, the recommended practice is the construction of retention ponds or detention basins, including infiltration, as a requirement of further development of the outlying growth areas. It is further recommended that the post construction peak outflows from new developments be limited to no more than the existing peak flow for the 2-, 10-, and 100-year storms. The Third Generation Lower Rum River Watershed Management Plan requires infiltration of the first 1" of runoff from new impervious surfaces. This will better mitigate the cumulative effects of increased impervious surfacing and increased runoff volume from new developments.

Because the majority of the area is served by large stream/wetland complexes, regional ponding is not possible for a significant part of the city. Where they are possible, the creation of regional ponds is preferred because of the limited maintenance (compared to a multitude of individual development ponds) and the opportunity to control larger drainage areas. By contrast, a multitude of scattered ponds associated with each individual site development may be designed to reduce the peak outflow for its smaller area, by storing the excess runoff and releasing it at a lesser rate for a longer duration. This longer pond outflow duration may coincide with the reduced peak flows from other individual site ponds and create a larger combined peak flow than the original undeveloped condition. Hence, regional ponds are recommended where physically possible, because of the opportunity to control the runoff on a larger scale and ensure that the downstream system is not adversely impacted by uncoordinated development that meets a typical runoff ordinance. The greater control afforded by regional ponds may also reduce the flows to the downstream system and allow for decreased costs in downstream infrastructure improvements.

4. The proposed infiltration requirements and pond network is part of the goal of accommodating continued responsible growth. Revisions will be required as formal developer layouts are presented to the City. Although this plan forms a sound basis for future development, it is important to remain flexible in finding ways to manage runoff while still accommodating the continued development of the city.

5. The maps attached at the end of this report are for general illustration purposes. As part of the plan development, large scale maps and GIS compatible files have been prepared as part of the 2008 SWMP and updated with preparation of this plan. The GIS maps and files show more detailed information including watershed areas, proposed pond areas and storage volumes, estimated flow rates into and out of the proposed ponds for both the existing and developed conditions, proposed interconnecting pipe sizes between ponds, etc.

6. The City will pursue outside funding to help finance the recommended capital improvements described in this plan. Local financing will most likely come from a combination of storm sewer trunk fees and the City's storm water utility fund.

   Any determined storm water management charges or area charges to new developments should be reviewed on an annual basis to ensure that changes in land acquisition, construction cost, bonding cost, legal cost, etc. are included in the computed fee.

7. The 2008 SWMP included a complete wetland functions and values assessment as part of a greater wetlands management plan.

   The wetland buffers recommended in the Wetlands Function assessment were approved by City Council then rescinded by a later City Council.

   Wetlands are to be further protected by controlling discharges from developing areas. The proposed controls include pretreatment BMPs and runoff controls designed to maintain the current hydrology and maintain or improve the current functions and values of the wetland.

D. **Amendments and Updates**

This report is intended for the coverage period to 2022. It should be considered as a working document that should be updated and amended in accordance with the procedures described in Section IX. Amendment will be needed as development progresses and actual new development data is integrated into the overall model.

The Minnesota Pollution Control Agency (MPCA) has not completed total maximum daily load (TMDL) studies for the impaired waters within the city boundaries of Ramsey (see Table 15 for the list), and is still completing the TMDL study of Lake Pepin (downstream from Ramsey). The Lake Pepin TMDL may have a major impact on all NPDES permittees in the metro area. The City of Ramsey is aware of the potential need to amend the local water management plan prior to 2022 based on the implications and requirements of the Lake Pepin TMDL and the TMDLs for the impaired waters within the city.

The City has updated the SWPPP in accordance with the reissuance of the MS4 permit in 2013.

III. REGULATORY REQUIREMENTS AFFECTING PLAN

The following is a brief summary of the primary Statutes and Rules governing storm water management in the 7-County metropolitan area. These requirements establish and control the content of this plan and cite objectives regarding surface water management:

A. Minnesota Rules Chapter 8410.0170

These rules outline the structure of a SWMP. Each SWMP must have the following at a minimum:

1. A purpose statement outlining the purposes of the water management programs required by MN Statute sections 103B.205 - 103B.255.
2. A section of water resource related agreements
3. A land and water resource inventory (required by part 8410.0060)
4. A section on the establishment of policies and goals
5. A section on assessment of problems
6. A section on corrective actions
7. A section on financial considerations
8. An implementation program discussing which components of the implementation program the City will prioritize
9. A section on the City's amendment procedures

This document is intended to meet these rules and hence each requirement is included. ~~In addition, copies of the appropriate ordinances with the recommended revisions are attached in Appendix A.~~

B. Minnesota Statute 103B.235

This state law predates Minnesota Rule 8410 and includes additional requirements as follows:

1. Subdivision 1 - *Requirement* states that the City of Ramsey is required to submit a watershed management plan because it is within the 7-County metropolitan area.
2. Subdivision 2 - *Contents* states that the SWMP shall:
   a. Describe existing and proposed physical environment and land use;
   b. Define drainage areas and the volumes, rates, and paths of storm water runoff;
   c. Identify areas and elevations for storm water storage adequate to meet performance standards established in the watershed plan;
   d. Define water quantity and water quality protection methods adequate to meet performance standards established in the watershed plan;
   e. Identify regulated areas; and
   f. Set forth an implementation program, including a description of official controls and, as appropriate, a capital improvement program.

3. Subdivision 3 - *Review* states that, after consideration but before adoption by the governing body, the City shall submit its SWMP to the area water management organization (WMO) for review for consistency with the watershed plan adopted pursuant to section 103B.231. The Lower Rum River Water Management Organization (LRRWMO) has WMO jurisdiction in Ramsey. According to the statute, the LRRWMO must approve or disapprove the plan or parts of the plan. The LRRWMO has 60 days to complete its review; provided, however, that the LRRWMO shall, as part of its review, take into account the comments submitted to it by the Metropolitan Council pursuant to subdivision 3a. If the WMO fails to complete its review within the prescribed period, the SWMP shall be deemed approved unless the City agrees to an extension.

3a. Subdivision 3a - *Review by Metropolitan Council* states that the City shall submit its SWMP to the Metropolitan Council for review and comment. The council shall have 45 days to review and comment upon the SWMP or parts of the plan with respect to consistency with the Metropolitan Council's comprehensive development guide for the metropolitan area. The Metropolitan Council's 45-day review period shall run concurrently with the 60-day review period by the LRRWMO. The Metropolitan Council shall submit its comments to the LRRWMO and shall send a copy of its comments to the City. If the Metropolitan Council fails to complete its review and make comments to the LRRWMO within the 45-day period, the LRRWMO shall complete its review as provided in subdivision 3 of State Statute 103B.235.

4. Subdivision 4 - *Adoption and Implementation* requires the City to adopt and implement its plan within 120 days after approval of the SWMP by the LRRWMO and to amend its official controls accordingly within 180 days.

5. Subdivision 5 - *Amendments* states that to the extent and in the manner required by the LRRWMO, all major amendments to the SWMP shall be submitted to the LRRWMO for review and approval in accordance with the provisions of State Statute 103B.235, subdivisions 3 and 3a for the review of plans. All minor amendments will be reviewed and approved by the City Council.

All of these required MS 103B.235 items are covered in this document.

C. **Local Ordinances**

The City of Ramsey will administer and enforce the water resource-related ordinances under the direction and control of, and subject to the powers expressly reserved to, the City Council. Following approval of this SWMP and ordinances, the City shall have administrative authority for the approved SWMP and ordinances. The Applicant, permittee or any other person or political subdivision with an interest in the determination of the City's interpretation or application of these ordinances may file a written appeal to the City Council within fifteen (15) business days of said determination. Said appeal shall state the specific grounds upon which the appeal is based. Within thirty (30) days of the date of receipt of the appeal, the City shall schedule the appeal for a regular or special meeting of the City Council. The City Council shall make its decision to affirm, reverse, or remand the determination by adopting a resolution stating findings of fact.

D. **Total Maximum Daily Loads and Impaired Waters**

The 1987 amendment to the Federal Clean Water Act required all impaired waters to be corrected. In making rules to meet the 1987 Amendment, the Environmental Protection Agency (EPA) first set criteria to determine a list of impaired waters depending on the potential use of the water. The Minnesota Pollution Control Agency (MPCA) worked to set guidelines to establish intended uses for the waters of the state and then set acceptable water quality criteria. After testing to determine the water quality, waters failing to meet the water quality criteria are placed on the 303d Impaired Waters list that is submitted to the EPA. Table 15 in Section IV, page 16 of this report, lists the current (2006) MPCA 303d Impaired Waters in Ramsey. It should be noted that, as of 2007, only about 25% of the waters of the State of Minnesota had been tested. Hence, the impaired waters list is likely to increase in the Ramsey area.

The process to remedy the impairment includes establishing a Total Maximum Daily Load (TMDL) allocation to each contributor to the problem. A TMDL is a calculation that determines the allowable pollutant load that can be discharged into the impaired water so that the limited load will ensure that the water improves to levels where it is no longer impaired. The typical process is initiated by the MPCA and includes a series of stakeholder meetings to formulate viable solutions and mutually work out a reasonable allocation of acceptable pollutant loading.

E. **Specific Lakes and Streams with Water Quality Problems**

Since a TMDL study has not been completed for the known impaired waters in Ramsey and downstream from Ramsey (such as Lake Pepin), the City should identify the priority it places on addressing impaired waters and how the City intends to participate in the development or implementation of TMDL projects. The Rum River and Mississippi River watersheds are too large for the City of Ramsey to take the lead on the TMDL Stakeholder process for these two waters. It is recommended that the City volunteers to participate in the Stakeholder process for these waters. Through this SWMP, the City of Ramsey has the capability of modeling contaminant transport using the SSA model. The City will work with the LRRWMO and the MPCA to formulate a TMDL for the impaired Rogers Lake.

Once a TMDL study is completed for the impaired water, the City must include, in this SWMP and its City-wide SWPPP, an implementation strategy including funding mechanisms that will allow the implementation of the TMDL requirements. As MPCA completes its TMDL process for each impaired water, the implementation of the measures to meet the TMDL will immediately become a priority item for the City of Ramsey.

F. **Lower Rum River Water Management Organization**

The City of Ramsey entered into a Joint and Cooperative Agreement for the Establishment of the *Lower Rum River Watershed Management Organization to Plan, Control and Provide for the Development of the Lower Rum River Watershed* in June of 1995. The Minnesota Board of Water and Soil Resources officially signed the Findings of Fact, Conclusions and Order accepting the Second Generation Watershed Management Plan on August 26, 1998. The LRRWMO updated its plan in 2012. The LRRWMO's plan update will trigger the mandatory re-evaluation and potential need for an update of the City's SWMP within two years from the date the LRRWMO's plan is approved by

BWSR. Update of the City's SWMP was delayed to incorporate the requirements associated with the reissuance of the MS4 permit in 2013.

G. **NPDES Requirements**

In 1987, the US Congress amended the Clean Water Act to include storm water pollution and directed the Environmental Protection Agency (EPA) to initiate rulemaking. The first round of EPA rules were implemented in 1991 when NPDES Phase I permits were required for all cities exceeding 100,000 in population. Phase II was implemented in 2003 and targeted all cities with populations exceeding 10,000. The Minnesota Pollution Control Agency (MPCA) assumed responsibility for implementing the rules and issuing all Phase II permits. The City of Ramsey was required to submit a permit for its Municipally Separate Storm Sewer System (MS4) in March of 2003. The permit was reissued in 2006 and 2013. The permit required the City of Ramsey to meet six minimum storm water control measures as follows:

1. Public education and outreach
2. Public participation and involvement
3. Detection and elimination of illegal discharges
4. Control of large construction sites runoff
5. Post construction storm water management
6. Pollution prevention or housekeeping for municipal operations

To show that the City of Ramsey is committed to implementing its Phase II permit, it was required to submit a Storm Water Pollution Prevention Program (SWPPP), which is essentially a list of promised steps the City proposes to make to meet these minimum control measures. The promises are in the form of Best Management Practices (BMPs) to be implemented at specified times over the life of the permit.

In general, the NPDES storm water discharge permit program is designed to reduce adverse impacts to water quality. The primary targets of acceptable storm water management plans are urban runoff and construction runoff. This is because urban runoff carries pollutants from cars, lawn fertilizers, pesticide spills and other contaminants into our lakes, wetlands and streams without entering wastewater treatment systems. Construction runoff is often laden with sediment caused by large amounts of un-vegetated soil that is loosened by excavation and grading.

The MPCA mandates are intended to regulate these sources of continued environmental degradation. To comply with the NPDES permit requirements, the City's SWPPP was drafted to establish measurable goals using the Best Management Practice (BMP) approach and to be able to track performance and progress.

Erosion and sediment control measures must be included in the City-wide SWPPP. The minimum standard is the General Permit Authorization to Discharge Storm Water Associated With Construction Activity Under the National Pollutant Discharge Elimination System/State Disposal System Permit Program Permit MN R040000 (NPDES/SDS Permit) issued by the Minnesota Pollution Control Agency on August 1, 2013, as amended. Some components of the NPDES/SDS Permit include:

1. If land disturbing activity is taking place on a site where the soils are currently disturbed (e.g., a tilled agricultural site that is being developed), areas that will

not be disturbed as part of the development and areas that will not be disturbed according to the time frames and slopes specified in the NPDES General Construction permit Part IV.B.2, shall be seeded with temporary or permanent cover before commencing the proposed land disturbing activity.

2. Where one (1) or more acres of disturbed soil drain to a common location, a temporary (or permanent) sediment basin must be provided prior to the runoff leaving the site or entering surface waters. The basins must be designed and constructed according to the standards in the NPDES General Construction Permit Part III.B.

3. The Permittee or applicant must ensure final stabilization of the site in accordance with the NPDES General Construction Permit requirements. The site will be considered as having achieved final stabilization following submission of Certificate of Completion by the permittee or applicant, and inspection and approval by the City.

H. **Non-Degradation Rulemaking**

The MPCA is currently going through due process to update its non-degradation rulemaking effort and amend the state rules governing the non-degradation of waters (Minn. R. 7050.0180 and 7050.0185). Rules protecting Outstanding Resource Value Waters were adopted in 1984, while rules governing non-degradation of all waters were adopted in 1988. Since then, there have been many changes to the state and federal structure for water protection and to the understanding of water quality. The MPCA intends, with the assistance of a significant stakeholder effort, to thoroughly investigate the issues associated with non-degradation of waters, and to adopt rules that will address those concerns.

The MPCA has already taken the first steps in the rulemaking process by publishing two Requests for Comments regarding our intent to amend the current non-degradation rules. These Requests for Comments were published in the *State Register* on January 29, 2007, May 29, 2007 and February 25, 2013.[3] The City of Ramsey will incorporate the non-degradation policies into this SWMP when they are formally adopted into the state rules.

[3] Excerpt taken from MPCA website: http://www.pca.state.mn.us/http://www.pca.state.mn.us/index.php/water/water-permits-and-rules/water-rulemaking/nondegradation-rulemaking.html

IV. LAND AND WATER RESOURCES INVENTORY

Each plan must contain an inventory of water resource and physical factors affecting the water resources based on existing records and publications. If data publications and maps are available at a convenient central location, they may be included by reference. The plan must include a brief summary of the data and must identify where the publication can be obtained. The following subsections are required.

A. Precipitation

The state climatology office has records of all official rain gauges throughout Anoka County. The monthly precipitation totals and county-wide monthly averages for Anoka County are available online at:

http://climate.umn.edu/HIDENannual/

The two closest high-density rain gauges are:

1. No. 211785, Coon Creek
2. No. 217308, Saint Francis

Information is readily available from 1971 to the present. Over this time period, the aggregate annual precipitation ranged as follows:

Lowest annual precipitation .....16.5 inches in 1976

Highest Annual Precipitation .....39.09 inches in 1983

Average Annual Precipitation .....29.54 inches per year

The following is the average annual precipitation per decade:

1970s.....26.8 inches per year

1980s.....29.9 inches per year

1990s.....31.2 inches per year

2000s.....29.6 inches per year

2010s.....29.2 inches per year

On the average, June is the wettest month, followed by July and May.

B. General Geology and Topographic Data

The City of Ramsey is nestled between the Rum and Mississippi Rivers and within 2 miles of the confluence of these rivers. The general terrain is relatively flat and is often called the Anoka Sand Plain. The elevations range from approximate elevation 920 feet above mean seal level in northwestern Ramsey to near 840 feet at the lower Rum River. The straight-line distance between these points is approximately 60,000 feet, making the average slope less than 1 percent. In general, the land slope is in the 2 to 5 percent range.

There are steep slopes within the shoreland protection zone of the Rum and Mississippi Rivers, as well as scattered locations throughout the City. From the aerial photographic contour map, the slopes near the rivers can be as high as 65 percent. A map showing the areas with slopes between 12 and 18 percent and separately showing the areas with slopes greater than 18 percent is attached as Figure 1.

Virtually all of the Ramsey city limits is within the Anoka Sand Plain, which consists of highly permeable soils. Figure 2 shows the general subsurface geology of aquifers in the vicinity of Ramsey. The Anoka Sand Plain is part of the undifferentiated drift (Layer 1). The Minnesota Department of Natural Resources and the Minnesota Geological Survey generated Figure 3 as part of the Regional Hydrogeologic Assessment for the Anoka Sand Plain.[4] Based on Figure 3, waterborne contaminants in the Ramsey area can reach upper aquifers within hours or months of release, necessitating additional care in regulating surface water contamination. The majority of Ramsey is rated with the highest geologic sensitivity to pollution in the uppermost aquifer.

The Board of Water and Soil Resources website indicates that Anoka County, though not participating in the official metropolitan groundwater planning process, has prepared a "groundwater protection assessment." The county public health department coordinates the county groundwater planning and management activities.[5] However, there is no mention of the assessment on Anoka County Health and Environment Department website.

The City Wellhead Protection Plan was completed in the September of 2007. The final draft of Part 1 was accepted by all review agencies and City staff is currently working on Part 2. Figure 4 shows the 10-year capture zone (Well Head Protection Area, WHPA) as well as the Drinking Water Supply Management Area (DWSMA) for the seven municipal drinking water wells in Ramsey. Storm water infiltration will not be allowed inside these zones.

C. **Surface Water Resource Data**

1. Public Waters

A map of the public waters, streams, lakes, and public ditch systems established under Minnesota Statutes, chapter 103D or 103E, including the location of existing dams and control structures is shown in Figure 5. A map of the natural drainage routes is also attached as part of the Parks Map in Figure 6.

The Minnesota Department of Natural Resources (DNR) uses the U.S. Fish and Wildlife classification system (Circular 39) for wetlands and currently requires a permit for alteration of wetland types 3-5 which are 2.5 acres or larger. Ramsey City Code Section 117-124, Environmental Protection Overlay Districts includes provisions designed to further protect wetlands.

In addition to the protected waters list, the Mississippi River has a designated Critical Area Corridor and the Rum River is designated as a Wild & Scenic Outstanding Resource Value Water (see Figure 6 – Parks Map).

[4] Minnesota Dept. of Administration / Office of Geographic and Demographic Analysis / Land Management Information Center. Website: http://www.lmic.state.mn.us/chouse/metadata/asp.html

[5] http://www.bwsr.state.mn.us/watermgmt/metrogroundwaterplans.html

2. Shoreland

In order to control the development and utilization of shoreland along protected waters thereby preserving the water quality, natural characteristics, economic values and the general health, safety and welfare, the following waters in the city limits have been given a shoreland management classification. These protected waters within the city limits have been classified by the Commissioner of Natural Resources as follows:

	Natural Environment Lakes	**DNR I.D. #**
1.	Lake Eddy	2-109
2.	Itasca	2-110
3.	Rogers	2-104

	Recreational Development Lakes	**DNR I.D. #**
1.	Jeglens Marsh	2-111
2.	Peltzer Pond	2-112
3.	Grass (Sunfish)	2-113

	General Development Lakes	**DNR I.D. #**
1.	Ramsey Terrace Pond	2-114
2.	Magnesium Street Pond	2-116
3.	Industry Avenue Pond South	2-117
4.	Industry Avenue Pond North	2-118

	General Development Streams	**Locations**
1.	Trott Brook	Sections 1, 2, 3, 7, 8, 9, T32N, R25W
2.	Ford Brook	Sections 1 & 2, T32N, R25W

The above shorelands of the city are designated as a Shoreland Overlay District. The purpose of the Shoreland Overlay District is to control the utilization of shoreland areas and to preserve the quality and natural character of these protected waters within the City. The shoreland overlay districts are shown on the City's Zoning Map as the Mississippi/Rum River Overlay Districts. Boundaries of the overlay districts can be determined by scaling distances off the official environmental overlay map. The City Zoning Map available online at:

http://www.ci.ramsey.mn.us/sites/default/files/documents/community%20development/planning%20division/zoning%20information/proposedzoningcc.pdf Minnesota Wetlands Conservation Act

All wetlands on the National Wetlands Inventory map are shown on Figure 7. The National Wetlands Inventory Map is not all inclusive, wetlands exist in the

City of Ramsey that are not shown on the map. Each site proposed for development must be evaluated for wetlands as required in City Code.

Pretreatment of all storm water from new developments is required prior to discharge into any wetlands. Wetlands may be, and are currently being used for storm water storage for larger rainfall events. They may continue to be used for this purpose – even after upstream development, provided that:

1. There is acceptable Best Management Practice pretreatment of the runoff in accordance with the MPCA NPDES/SDS Construction Permit, Section III.~~C~~D., Permanent Stormwater Management System.
2. The bounce from the normal water level to the high water level does not exceed two feet.

The Minnesota Wetland Conservation Act (WCA) requires the designated Local Governmental Unit (LGU) in charge of administering the WCA to generate a Notice of Wetland Conservation Act Decision for any impact to wetlands within the City of Ramsey. In all but minor decisions, the LGU will call for a Technical Evaluation Panel (TEP) review of the application or impact prior to issuing a decision. The LGU must give notice of proposed actions affecting wetlands to all of the following:

a. The Minnesota Board of Water and Soil Resources

b. The Soil and Water Conservation District

c. The Minnesota Department of Natural Resources

d. The Lower Rum River Watershed Management Organization

e. The U.S. Army Corps of Engineers

f. Interested citizens requesting notification of such actions

If a TEP meeting is required, all listed parties are invited to review the proposed action. However, it is not uncommon for a TEP meeting to consist of only a small contingent of this list, as some invitees may have no jurisdiction over the proposed action.

3. Watersheds

A general watershed map breaking the City of Ramsey into seven primary watersheds is attached as Figure 8~~9~~. The naming convention for the nodes (i.e., pipes, channels, junctions, manholes, and ponds) is based on the county section and quadrant numbers and is described in Figure ~~10~~9. The subsequent Figure Nos. ~~11~~10 through ~~24~~23 show the subwatersheds and drainage pattern within each of the separate primary watersheds. Storm water ponds, 100-year peak pond elevations and outfalls are also shown on these maps.

The City Storm Sewer infrastructure is also shown on the individual primary watershed maps. In the GIS database for these maps, the pipe network is color coded to reflect the various pipe sizes.

4. Flood Levels

Floodplains are covered by City of Ramsey Code Section 117-180.~~9.22, which is included in Appendix A.~~ A comprehensive map showing all of the FEMA Flood

Insurance Rate Map (FIRM) flood plains is attached as Figure 2~~4~~5. Flood studies have been performed for the following waterways:

a. Mississippi River

b. Rum River

c. Trott Brook

d. Ford Brook

Copies of the flood studies are available at the office of the City Engineer or online at the FEMA Map Service Center. These studies have been incorporated into the Official Zoning Map in accordance with Ramsey City Code Section ~~9.22.02~~117-180. The Official Zoning Map is on file in the Office of the City Administrator and the City Zoning Administrator.

In addition to the flood levels predicted by the FEMA flood studies, Bolton & Menk performed a flood study of County Ditch 66 using the HEC-RAS stream modeling program. This information has been coordinated with the SSA modeling software and submitted to FEMA for agency acceptance as a flood plain elevation. The 100-year flood plain has been recorded on the map along with the FEMA data. The color-coded legend of Figure ~~25~~ 24 helps to differentiate between the federally modeled floodplain and the unofficial City flood plain.

In addition to the flood map, Tables 1 through 7, located in the Tables Appendix of this report summarize the modeled 100-year flood levels and peak discharges of existing storm water ponds and natural depressions that correspond to the peak discharges of channel flow passing through the watershed.

After a detailed review of the new and available flood profile information, the results appear consistent and provide a reasonable hydraulic grade from the upper reaches of the various flood channels to the ultimate confluence with the Rum and/or Mississippi Rivers.

5. Water Quality Information

Section 303d of the Clean Water Act requires that each state submit a list of Impaired Waters. The MPCA website lists the impaired waters as officially designated in 2014. Table 15 lists the impaired waters found in Ramsey:

Table 15
303d Impaired Waters List Excerpt from MPCA

Name	Affected Use	Pollutant or Stressor	Year Designated	Target Start	Target Completion
Rogers Lake	Aquatic Recreation	Excess Nutrients	2006	2013	2017
Rum River	Aquatic Consumption	Mercury, FCA	1998	2008	~~2011~~2025
Mississippi River	Aquatic Consumption	Mercury, FCA	1998	2008	~~2011~~2025
	Aquatic Consumption	PCB, FCA	2002	2002	2025

The Minnesota DNR maintains a database on all Minnesota lakes. Some of this data is very limited or not available, while other lakes have been studied in great detail. To find the most current data on the lakes in Ramsey, access the Lake Finder on the DNR Website.

The WMO document has a list of monitoring locations. The Anoka Conservation District (ACD) has water quality information. The ACD has also published a water atlas.

6. Water Appropriations

Upon approval by all of the review authorities, the City's approved Wellhead Protection Plan will be incorporated into this plan by reference. At present, the draft includes all of the current municipal ground water appropriations. The City is ~~planning to~~considering obtaining surface water appropriations from the Mississippi River for a 20 MGD water treatment plant. The scope of the project will require Regional Participation. The City is working with the Metropolitan Council and others to secure support and funding for a regional water treatment plant. The water treatment plant is intended to supply water for the anticipated population growth of the City. When the new water treatment plant is approved and constructed, the existing City wells and permitted groundwater appropriations are planned to remain unchanged to be readily available as backup for water needs.

7. Soil Data

Ramsey City Code, Section ~~9~~117-424~~.13~~ ~~(included in Appendix A)~~ covers types of soil that are adequate for septic systems. According to Ramsey City Code ~~Section 9.13.01~~, the City adopts the Anoka County Soil Survey, 1977 (Soil Survey) and supplemental operational soil surveys as its official soil survey and makes it a part of the City Code. The Anoka County soil survey map of the Ramsey area is attached as Figure ~~26~~25. In general, the City of Ramsey has soils in SCS Hydrologic Soil Type A. Table 16 lists the recommended infiltration rates based on SCS hydrologic soil types.

Table 16
Infiltration Rates Per Soil Type

Hydrologic Soils Type	Infiltration Rate	Soil Texture
A	0.30 inches/hour	Sand, loamy sand, or sandy loam
B	0.15 inches/hour	Silt loam or loam
C	0.07 inches/hour	Sandy clay loam

Source: Urban Hydrology for Small Watersheds (SCS, 1986), as amended, revised or supplemented.

8. Land Use and Public Utility Services

Necessary land use and public utility services information is limited to information that existed at the time the plan or plan amendment was developed, including:

a. A general map of existing land uses (Figure ~~27A~~26A);

b. A general map showing anticipated land uses (Figure ~~27B~~26B); and

c. A reference to the location of the metropolitan urban service area.

Land use is one of the primary mechanisms that affect flooding and water quality. As prairie and forested areas are converted to agricultural and urban uses, the volume and rate of storm water runoff increases. This increase in storm water runoff can cause a change in the bank full flow of area streams and conveyances. This can cause stream bank erosion and deterioration of the stream. In addition, increased area runoff can cause erosion in steep areas. The conversion of natural land cover also increases the amount of pollutants in storm water runoff such as the levels of pesticides and nutrients from agricultural land use, and trace metal concentrations from urban land use. Pollutant loading analysis has not been included within this report. This plan estimates the future land use throughout the study area in order to evaluate the drainage system needs.

Although pollutant concentrations may not vary greatly between land uses, pollutant loadings are a function of both runoff volume and concentration. The volume of runoff is directly related to the amount of impervious surface from a particular land use. For example, if a fictitious *Area A* has twice the runoff due to higher impervious land cover as *Area B* with the same pollutant concentration, *Area A* will have twice the pollutant loading. This is the basis for the major difference in water quality between residential and commercial land uses and affects surface water planning strategies for the different land uses. The Minnesota Land Cover Classification System (MLCCS) cover types for the Ramsey area are shown in Figure ~~27C~~26C.

9. Water-based Recreation Areas and Land Ownership

Figure 6 – Parks Map shows the location of all Parks and the location of all DNR public water accesses within the City of Ramsey.

10. Fish and Wildlife Habitat

The City of Ramsey has applied to the DNR for an updated list and description of the conclusions and recommendations of biological surveys or reconnaissance studies in December of 2014. Since this list is sensitive it is not included in this report, but is on file in the office of the City Engineer.

11. Unique Features and Scenic Areas

The Mississippi and Rum River Corridors within the City are unique and valuable local, state, regional and national resources. The rivers are an essential element in the local, regional, state and national transportation, sewer and water and recreational systems and serve important biological and ecological functions. The prevention and mitigation of irreversible damage to these resources and the preservation and enhancement of their natural, aesthetic, cultural and historic values is in furtherance of the health, safety and general welfare of the City. The Mississippi River Corridor Critical Area and the Rum River Scenic River are

protected under Ramsey City Ordinance Section 117-145, and 117-2522. ~~which are included in Appendix A.~~

The City of Ramsey Code Section 117-252 ~~(included in Appendix A)~~ regulates bluff land and river land development in order to protect and preserve the outstanding scenic, recreational, natural, historical, and scenic values of the Rum River in the city of Ramsey in a manner consistent with Minnesota Statutes, §104.31 - 104.40, Minnesota Regulations NR78-81, and the Management Plan for the Rum River (6 MCAR 1.2700 - 12720).

The City has an Environmental Policy Board that has been actively documenting and mapping the City's existing natural features including:

a. Native prairie communities

b. Woodlands

c. Functions and values of wetlands

d. Rare and endangered species

e. Historic and heritage buildings and features

Their report, which may be found on the City website, is included in this document by reference.

The Scenic River Land Use District is divided into two areas designated as the Urban Area Overlay District, or Rural Area Overlay District and are covered under City of Ramsey Code Section 117-254.

Pollutant Sources

The City of Ramsey has one closed landfill (the Anoka Regional Solid Waste Facility). Peter Tiffany at the MPCA keeps the records. The City is not aware of any other landfills.

There was a high nitrate area east of Armstrong Boulevard between 158th Avenue and 161st Avenue that was attributed to agricultural activity. There was a hog farm west of TH47 at 157th Avenue. The City does not have any permitted wastewater discharges.

The City does not keep a list of storage tanks. These records are currently kept at the Anoka County Environmental Services office.

The MPCA "What's in My Neighborhood?" website lists known and potential sources for soil and groundwater contamination. The majority of the sites listed are Voluntary Investigation and Cleanup (VIC) sites. A text based search for Anoka County and Zip code 55303 listed over 600 permits; however, some of the addresses were not in the City of Ramsey. Additional many sites had multiple permits at the same address. When the duplicate addresses in the City of Ramsey were sorted out, they totaled 215 sites. These are listed in Table 17.

Table 17

Known or Potential Sources of Soil or Groundwater Contamination

Activity ID	Activity Name	Address	
VP20690	14140 Azurite	14140 Azurite St NW	Ramsey
~~MNS000158998~~	~~901 Auto~~	~~901 W Highway 10 Bay 2~~	~~Ramsey~~
VP24480	A1O0143 - Alpine Park	6600 Alpine Dr NW	Ramsey
MND985724061	Aca Management 367	5195 142nd Ave NW	Ramsey
MNR000058230	Accent Precision Wood Products	6250 McKinley St NW	Ramsey
MNR000118802	Accurate Auto Inc	9716 Highway 10	Ramsey
MND982220089	Accurate Auto Inc-Ramsey	9617 Highway 10 W	Ramsey
VP18690	Ace Solid Waste - Ramsey	6601 McKinley St NW	Ramsey
MND985702851	Adrien Mechanic Services	6021 Bunker Lake Blvd NW	Ramsey
MNR000079889	Aero Restoration & Repair Co	7101 143rd Ave NW Ste B	Ramsey
MNRNE35D6	All-Brite Graphics LLC - ISW	6320 Highway 10 NW	Ramsey
MNS000177972	Allina Health Ramsey Clinic	7231 Sunwood Dr NW	Ramsey
MNR000060970	Allina Medical Clinic - Ramsey - Alpine Drive	5300 Alpine Dr NW	Ramsey
MND985752047	Alloy Recovery Co Inc	7060 142nd Ave NW	Ramsey
MNR000027722	Alpha Power & Technology	14000 Unity St	Ramsey
SA7044	Alsil Stephens Dump	See location description	Ramsey
MND089476451	Altron Inc	6700 Bunker Lake Blvd NW	Ramsey
MNR000081067	Amcor Precast Inc	6640 Industry Ave	Ramsey
MND982071714	American Trade A Bus Inc	14000 Sunfish Lake Blvd NW	Ramsey
MNR000078246	Anderson & Dahlen Inc	6850 Sunwood Dr NW	Ramsey
MNR000015057	Anderspm Wade	15031 Hematite St NW	Ramsey

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Activity ID	Activity Name	Address	
SA7100	Anoka County State Hospital Demo Fill	See location description	Ramsey
SA7111	Anoka Municipal Regional Landfill	14730 Sunfish Lake Blvd NW	Ramsey
MND985705292	Anoka Ramsey Automotive - Hwy 10	6262 Highway 10 NW	Ramsey
MND985753730	Anoka Ramsey Dental	5300 153rd Ave NW Ste 3	Ramsey
MNR000032169	Anoka Ramsey Sport Center	6760 Highway 10 NW	Ramsey
MNS000177618	Anoka-Ramsey Dental	5400 140th Ave NW Ste 104	Ramsey
MNR000114918	AR Honing	6250 Bunker Lake Blvd NW Ste 219	Ramsey
MNS000143404	Arrow Components Corp	6230 Mckinley St NW Ste A	Ramsey
3789	Auto Ranch	7665 Highway 10 NW	Ramsey
MN0000036038	Auto Truck Hydraulics	7445 Highway 10 NW Ste 3	Ramsey
MNR000115139	Automated EDM Inc	6231 McKinley St NW	Ramsey
MNR000023234	B & A Cylinder Head - Ramsey	14165 Ramsey Blvd NW	Ramsey
MND985684406	B & D Auto	14966 Nowthen Blvd NW	Ramsey
MND982642936	B & D Repair - Ramsey	9451 Highway 10 NW	Ramsey
MNS000172445	B&K Swiss Inc	14220 Basalt St NW	Ramsey
MNR000115022	Bailey Woodworking	6250 Bunker Lake Blvd NW Ste 216	Ramsey
MNR000101824	Baker White Inc	6111 Highway 10 NW	Ramsey
MNS000131292	Barnett Family Dentistry	7962 Sunwood Dr NW Ste 200	Ramsey
VP4771	Barnett Olds #2	6415 Hwy 10 NW	Ramsey
MNS000178897	B-Brothers Auto	7103 Highway 10 NW	Ramsey
VP8482	BK Ramsey Site	7205 Hwy 10 NW	Ramsey

Activity ID	Activity Name	Address	
MND985709401	Blass Automotive	6100 Industry Ave	Ramsey
MND982212045	Blatz Automotive	7105 Highway 10 NW	Ramsey
MND985720952	Blue Line Collision Center	6260 Highway 10 NW	Ramsey
VP8481	BNSF R-O-W #2	See location description	Ramsey
MN0000380881	Boart Longyear Co - Anoka	6300 Industry Ave	Ramsey
MNR000064659	C & F Race Cars	7101 143rd Ave NW Ste P	Ramsey
VP18650	Cabinetry Concepts	14410 Azurite St	Ramsey
MNRNE35J5	Carbon Products/ Division of Graphel Corp - ISW	6251 McKinley St NW	Ramsey
MN0000043513	Chamlin Towing	14300 Sunfish Lake Blvd NW	Ramsey
MNS000133942	Chips Tool Repair Inc	6250 Bunker Lake Blvd Ste 206	Ramsey
MND985695808	Cjs Auto Repair	17600 Gibbon St NW	Ramsey
MNS000135558	Class C Components Inc	6825 Sunwood Dr NW	Ramsey
MND985738293	Coated Abrasive Products Co	14059 Sunfish Lake Blvd	Ramsey
MNS000174011	Coborn's Pharmacy 33	7900 Sunwood Dr NW	Ramsey
MNS000118869	Collision 2000 Inc	3345 Viking Blvd	Ramsey
MNR000042424	Command Tooling Systems	13931 Sunfish Lake Blvd NW	Ramsey
MND985680040	Commercial Asphalt Co - Plant 906	6640 141st Ave NW	Ramsey
MNS000141010	Concrete Masonry Unlimited	9411 Alpine Dr NW	Ramsey
MNR000033787	Connexus Energy	14601 Ramsey Blvd NW	Ramsey
MNRNE373P	Countryside Printing Inc - ISW	6250 Bunker Lake Blvd NW Ste 113	Ramsey
MNS000186908	Courage Kenny Sports & Physical Therapy Center Ram	7231 Sunwood Dr NW Ste A	Ramsey
VP26500	CSAH 116 Reconstruction - ROW	6100 Industry Ave NW	Ramsey

Activity ID	Activity Name	Address	
VP25020	CTT Properties, LLC	6600 Sunwood Dr NW	Ramsey
MNS000140152	Cullinan Rigging & Erecting Inc	6815 McKinley St NW	Ramsey
MN0000012450	D Cobey Co Inc	9340 Highway 10 NW	Ramsey
MND006220719	Dahlheimer Beverage LLC	13554 Tungsten St NW	Ramsey
MND982640476	Danny's Trannys Inc	14050 Basalt St NW	Ramsey
MNR000004036	Detail Tool & Engineering Inc	6511 Industry Ave	Ramsey
MND985669936	Diamond Automotive Inc/ Auto Fitness & Service Ctr	7029 Highway 10 NW	Ramsey
MNS000141085	DiamondGraphics	14350 Azurite St NW	Ramsey
PW6124218640	Dickenson Diesel	NW Highway 10	Ramsey
MNR000119271	Die Concepts Inc	13915 Radium St NW Ste F	Ramsey
MNR000077495	Digital Tool & Automation	6501 McKinley St NW	Ramsey
MNR000103978	Dynamic Group Inc - Ramsey	13911 Unity St NW	Ramsey
MND985729847	E & L Machine	5944 168th Ln NW	Ramsey
MNS000168625	Eddys Auto & Body Repair Inc	6845 Highway 10 NW	Ramsey
MNR000076554	Egan Oil Co	500 Bunker Lake Blvd NW	Ramsey
MNR000013532	Erin Contracting	8050 147th Ave NW	Ramsey
MNR000119669	E-Z Auto Sales Inc	7751 Highway 10 Ste 6	Ramsey
MNR000115501	Falcon Machine Inc	7101 143rd Ave NW Ste N	Ramsey
MNR000060186	Ferrellgas - Anoka	7255 Highway 10 NW	Ramsey
MNR000100057	First Cut Products Inc	6250 Bunker Lake Blvd NW Ste 104	Ramsey
MNNONGEN1170	Flavor Midwest Inc	9459 Highway 10 NW	Ramsey
MN0000275925	Food N Fuel C15	13939 Saint Francis Blvd	Ramsey

Activity ID	Activity Name	Address	
MN0000196147	Galindo Electric	15645 Traprock St NW	Ramsey
MN0000083741	GEC Auto Service Inc - Ramsey	7129 Highway 10 NW Site C	Ramsey
MND985722420	Gerdes Racing	7321 152nd St	Ramsey
MNS000177170	Gibbs Lawn	6300 Bunker Lake Blvd NW	Ramsey
MNR000080655	Gibbs Lawn - Radium Street	13915 Radium St NW Ste D	Ramsey
MNRNE39NX	Graphel Carbon Products ISW	6251 Mckinley St NW	Ramsey
MNR000015867	H Ten Sports	8110 Highway 10 NW	Ramsey
VP26700	Harber Industries	6690 Sunwood Dr NW	Ramsey
MND985749530	Harolds Our Own Hardware	6000 167 Ave NW	Ramsey
MNRNE39BB	Health Care Marketing Inc dba Perry Products ISW	6023 167th Ave NW	Ramsey
MNS000147306	Heartland Tire	7151 Riverdale Dr	Ramsey
MND982642894	Heichel Brian	6933 164th Ln NW	Ramsey
MN0000036061	Hi Tech Collision Frame	7445 Highway 10 NW Ste 2	Ramsey
3700	Hills Property	7443 Highway 10	Ramsey
MNR000066407	Hitech Motorsport Inc - Ramsey	13915 Radium St NW Ste C	Ramsey
3473	Hi-Ten Sports Center	8110 Highway 10 NW	Ramsey
MNS000117358	Home Dame Brothers Painting	15621 Barium St NW	Ramsey
MNR000117317	Import Auto Sales Inc	7443 Highway 10	Ramsey
MNR000115113	Intech Industries Inc	7180 Sunwood Dr NW	Ramsey
MNR000051607	Integrity Tool & Engineering	6221 Mckinley St NW	Ramsey
MNR000022061	Intercity Oil	6021 Highway 10 NW	Ramsey
MNR000076778	ISD 11 Ramsey Elementary	15000 Nowthen Blvd NW	Ramsey
MND985704634	Jac Auto Repair & Sales	6336 Highway 10 NW	Ramsey

Activity ID	Activity Name	Address	
MND985764141	Jacks Auto Repair	14290 Sunfish Lake Blvd NW	Ramsey
MNS000130245	JDI Signs & Graphics	6451 McKinley St NW Ste P	Ramsey
MNR000112235	JR Data Solutions Inc	6250 Bunker Lake Blvd NW Ste 204	Ramsey
MN0000367144	Julian M Johnson Construction Corp	6191 140th Ave NW	Ramsey
MNR000078725	Just Precision Inc	6250 Bunker Lake Blvd Ste 213	Ramsey
MND071773733	Kens Automotive	15415 St Francis Blvd	Ramsey
MNR000111534	Kit Masters Inc	6250 Industry Ave NW Ste 211	Ramsey
MNS000214106	Kovar Sales	14047 Azurite St NW	Ramsey
MND985721208	Ksiazek Charles	15710 Juniper Ridge Dr NW	Ramsey
MND981535230	Lamey Dave	15940 Sodium St NW	Ramsey
MND981802390	Lano Equipment Inc	6140 Highway 10 NW	Ramsey
MNR0534DB	Life Fitness Div of Brunswick Corp - SW	14150 Sunfish Lake Blvd NW	Ramsey
MN0000190736	Links At Northfork	9400 153rd Ave NW	Ramsey
A00002353	Listul Industries Inc - SW	13900 Sunfish Lake Blvd NW	Ramsey
MNR000007898	Mach 5 Auto Service	7129 Highway 10 NW	Ramsey
MND985714658	Marshall Concrete Products Inc - Ramsey	14141 Unity St NW	Ramsey
MNR000058859	Mat Inc	6230 McKinley St NW Ste E	Ramsey
MND057087678	Mate Punch & Die Co	6400 Industry Ave	Ramsey
MND022705834	McKay's Auto Sales	6415 Highway 10 NW	Ramsey
MNS000191544	Metro Dentalcare - Ramsey	7600 Sunwood Dr NW	Ramsey
MNP200000248	Metropolitan Airports Commission	Anoka Cty Blaine Airport	Ramsey

Activity ID	Activity Name	Address	
MNR000078980	Midwest Car Care - Ramsey	6745 Highway 10 NW	Ramsey
MNR000027802	Midwest Overhead Crane Corp	13900 Sunfish Lake Blvd NW	Ramsey
MN0000625962	Minnesota Sawdust & Shavings Co Inc	14100 Jasper St NW	Ramsey
MNR000069252	Minnesota Tool & Die Works Inc	6220 McKinley St NW	Ramsey
VP22410	Minnesota Waterjet	See location description	Ramsey
MNS000111344	Mississippi West Regional Park	13935 Traprock St NW	Ramsey
VP21480	MNDOT TH 10 & CTY RD 56	Ramsey Blvd & Hwy 10	Ramsey
MND982605495	Mpca Ramsey Municipal Center	15153 Nowthen Blvd NW	Ramsey
MNS000172833	Multisource Manufacturing LLC Ramsey	6690 Sunwood Dr NW	Ramsey
MND982613234	Noard Machine Tool Inc - Anoka	6760 Highway 10 NW	Ramsey
MND008797938	Noons RV Center	7405 Highway 10 NW	Ramsey
MNR000069179	North Country Concrete	7040 143rd Ave NW	Ramsey
MN0069396	Northern Lights 2009-2010 Zone EF	Address Unknown	Ramsey
MNS000174284	Northwest Metro VA Clinic	7545 Civic Center Dr NW	Ramsey
MNU000661	Oak Terrace Mobile Home Park	6545 Highway 10 NW	Ramsey
MNR000016972	Oil Change Anywhere Inc	14620 Fluorine St NW	Ramsey
MNS000138859	Oldcastle Precast Inc	6820 143rd Ave NW	Ramsey
MNS000179796	Optimum Appliance & Recycling Center LLC	9539 Highway 10 W	Ramsey
MN0000998948	Outside Services Inc	14140 Azurite St	Ramsey
MNS000107490	PACT Charter School - Ramsey	7250 Ramsey Pkwy E	Ramsey
MNR000119677	Park RV	9919 Highway 10 W	Ramsey
MND982212532	Pearsons Trucking Inc	14050 Azurite Blvd	Ramsey

Activity ID	Activity Name	Address	
4542	Peck Construction	13900 Sunfish Lake Blvd NW	Ramsey
MNR000026880	Pine Ridge Pet Care - Ramsey	7245 Highway 10 NW	Ramsey
MNR000080648	Plateworks Inc - Ramsey	6230 McKinley St NW Ste B	Ramsey
MNS000162735	Pleasureland RV Center	7900 Riverdale Dr	Ramsey
MN0068691	Prairie Meadows/Kelly Acres	Armstrong Blvd NW & Tiger St NW	Ramsey
MNR000023374	Pro Power Sports & Marine Inc	6781 Highway 10 NW	Ramsey
MND985717925	Production Products Inc	14161 Basalt St NW	Ramsey
VP15161	QDP and JBT Alliance Site (see Waste Management Site)	See location description	Ramsey
MNS000100776	Quail Manufacturing Co Inc	6250 Bunker Lake Blvd NW Ste 222	Ramsey
MNS000147835	Qwest - Ramsey Garage	6651 141st Ave NW Ste 2	Ramsey
MNS000147546	Rain for Rent	9550 156th Ave NW	Ramsey
MNS000113290	Ramsey Brake & Exhaust Inc	5143 179th Ln NW	Ramsey
MNR000013086	Ramsey city of Public Works	14100 Jasper St NW	Ramsey
MND985703941	Ramsey Dental Center	15243 Nowthen Blvd NW	Ramsey
MNS000177782	Ramsey Police Department	7550 Sunwood Dr NW	Ramsey
MND985677723	Ramsey Public Works Shop	St Francis Blvd & 142nd Ave	Ramsey
VP26860	Ramsey School Site	See location description	Ramsey
VP22580	Ramsey Vacant Land Parcel	See location description	Ramsey
MND985764968	Renolette Trucking	6100 Industry Ave Ste 201	Ramsey
MNS000210823	Residence - 9131 178th Ave	9131 178th Ave NW	Ramsey
4573	Rivenwick Village North	6897 139th Ln NW	Ramsey
3591	Rivenwick Village Outlot B	Riverdale Dr & Highway 10	Ramsey

Activity ID	Activity Name	Address	
MNS000123760	RJM General Paper Products Inc	6650 143rd Ave NW	Ramsey
MND982219297	Rockford Autobody	14000 Basalt St NW	Ramsey
VP19380	Rotary Systems	Azurite St NW	Ramsey
MND985700012	Royal Concrete Pipe Ramsey	6640 Industry Ave	Ramsey
MND138781364	Rum River Hills Golf Club Inc	16600 Saint Francis Blvd	Ramsey
MNR000109751	Sauter & Sons Inc	6651 141st Ave NW Ste 2	Ramsey
MND099055691	Sauter & Sons Inc - Azurite St	14050 Azurite St NW	Ramsey
VP19550	Senior Housing Parcel	County Road 116	Ramsey
MNR000059618	Shorewood RV Center	8390 Highway 10 NW	Ramsey
MNR000103952	Signature USA Inc	8781 162nd Ln	Ramsey
MNR000078733	Simhof Manufacturing Tech	6250 Industry Ave Ste 112	Ramsey
A00022596	Solo Manufacturing Inc - ISW	6230 McKinley St NW Ste C	Ramsey
MN0000341545	Sorby Jan	16301 Azurite St NW	Ramsey
MNR000080069	Specialized Coatings Inc	6250 Bunker Lake Blvd NW Ste 214	Ramsey
MN0001025162	Spider Staging Corp	6250 Industry Ave Ste 108	Ramsey
VP19590	St. Anthony Gun Club	16128 Variolite St NW	Ramsey
VP18800	St. Paul Terminals - Ramsey	14050 Basalt St NW	Ramsey
MNR000055376	Star Auto Sales Inc	7009 Highway 10 NW	Ramsey
MNR000023036	State Of Minnesota Weigh Scale	9225 Highway 10 NW	Ramsey
VP16770	Sunfish Business	See location description	Ramsey
MNR000017889	SuperAmerica 4508	14000 Saint Francis Blvd	Ramsey
MNR000004333	Superior Striping Inc	14021 Basalt St NW	Ramsey
MNR000056010	Tech One Motorsports Inc	6250 Industry Ave Ste 106	Ramsey

Activity ID	Activity Name	Address	
4270	The Lighthouse Bar And Grill	6937 Highway 10	Ramsey
MND985749522	Tims RV Service	14050 Azurite St NW	Ramsey
MND922222135	Trade A Bus	Sunfish Blvd	Ramsey
MNR000056887	Utili Trax Contracting Partnership	6300 Industry Ave	Ramsey
MND982619983	Vance Brothers Inc	14021 Azurite St NW	Ramsey
SA7043	Ve-Ve, Inc Caustic Soaps	See location description	Ramsey
MN0065501	Vision-Ease LP dba Vision-Ease Lens	7000 Sunwood Dr NW	Ramsey
MNR000109900	V-Tech Motorsports Inc	14000 Sunfish Lake Blvd Ste I	Ramsey
MNR000100792	Waiser Outlet Center	7955 Riverdale Dr NW	Ramsey
VP5021	Waltek Inc. II	14310 Sunfish Lake Blvd	Ramsey
VP15160	Waste Management Site	Sunfish Lake Boulevard	Ramsey
MN0000234179	Welsh Engine Sales	6150 Highway 10 NW	Ramsey
MND985677970	Welsh Engine Sales	15443 Ramsey Blvd NW	Ramsey
VP31280	Wendell's Inc., Ramsey	6601 Bunker Lake Blvd NW	Ramsey
MN0000010769	Westside Auto Body	6140 1/2 NW Highway 10	Ramsey
VP20930	Wildlife Research Center	Azurite St	Ramsey
PW6124274140	Wuorio Truck Sales	9619 Highway 10 W	Ramsey
MNRNE35LF	Zero Zone Refrigeration - ISW	6151 140th Ave NW	Ramsey

D. **Design Requirements**

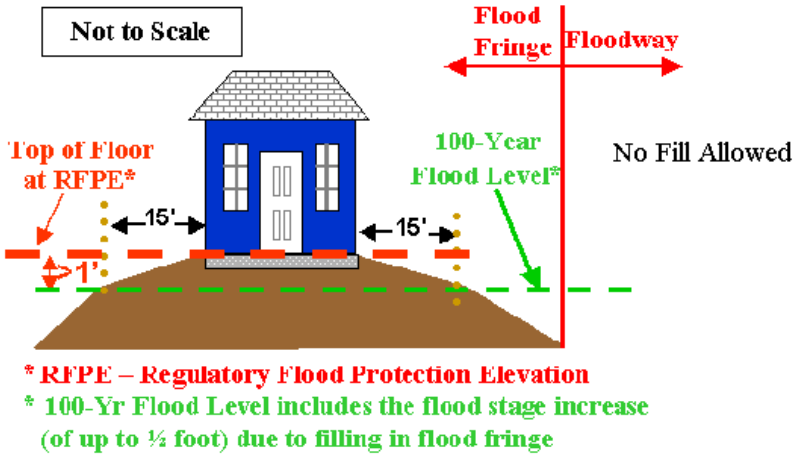
The Ramsey SWMP has a dual purpose: 1) It will serve as a guide for the construction of storm drainage facilities, and 2) It will provide a basis for a consistent approach to the preservation of lakes, wetlands, streams, and the Mississippi and Rum Rivers. The following issues have been incorporated into this plan:

1. Division of the City into major watersheds based on contour maps, grading plans and natural topography
2. Determination of storm water runoff problems under current land use conditions
3. General layout and sizing of trunk storm sewers and open channels
4. Tributary areas, storage volumes, and high water levels of all existing ponding areas
5. Recommendations to accommodate the ultimate land use conditions
6. Recommendations for the revision of the current development ordinances
7. Recommendations for standard Operations and Maintenance procedures
8. Recommendations for specific construction site erosion control practices
9. Estimated construction and implementation costs of the SWMP
10. Recommendations for education of City residents, staff, and development community.

The primary function of an urban storm drainage system is to minimize economic loss and inconvenience due to periodic flooding of streets and other low-lying areas. Adequately designed storm drainage facilities provide flood control, minimize hazards and inconvenience associated with flooding, and protect or enhance water quality. The SWMP takes the entire drainage basin with future saturation development into consideration.

Wet water quality ponds upstream of dry regional infiltration basins (where possible) will help control the rate and the volume of storm water runoff. To provide flood protection for adjacent property, the design storm interval for ponding areas is a 100-year storm as compared to a 10-year storm for design of storm sewer piping. Any new residential, commercial, industrial and other habitable structures shall be constructed with the following low floor elevation: Elevation of the lowest opening of a structure shall be a minimum of 1 foot above the Emergency Overflow, or 2 feet above the HWL of the nearby pond or water body, whichever is higher. The area of a pond's HWL plus 1 foot of freeboard shall be contained entirely within an outlot that is owned and maintained by the City or within a drainage utility easement.

In areas adjacent to designated flood plains as mapped on a Flood Insurance Rate Map, the Regulatory Flood Protection Elevation (RFE) applies. The RFE is defined as the mapped 100-year flood elevation plus 1 foot. However, the LRRWMO requires that the low floor elevation of structures be 2 feet above the calculated flood elevation. Therefore, all structures, including accessory structures, must be elevated on fill so that the lowest floor including basement floor is 1ft above the Regulatory Flood Protection Elevation or 2 foot above the mapped 100-year flood elevation. The finished fill elevation for structures shall be no lower than the Regulatory Flood Protection Elevation and the fill shall extend at such elevation at least fifteen (15) feet beyond the outside limits of the structure erected thereon. The following drawing better defines the Regulatory Flood elevations.[6]



Minimum Standards for Structures in 100-year floodplain

The numerous natural depressions found throughout Ramsey have been incorporated into the SWMP as ponding areas. The effective use of ponding areas enables the installation of outflow sewers with reduced capacities since the design storm duration is effectively increased over the total time required to fill and empty the ponding reservoirs. Storm sewers represent a sizable investment for the community and this investment can be more efficiently utilized by ponding storm water in designated ponding areas and allowing smaller diameter pipes to be used as outfall lines.

[6] Taken from the Minnesota DNR website: http://www.dnr.state.mn.us/waters/watermgmt_section/floodplain/rfpe.html

Equally as important as flood control and cost considerations, is the use of ponding areas to:

1. Improve water quality;
2. Return storm water to the groundwater table;
3. Increase water amenities in developments for aesthetic, recreational and wildlife purposes.

For water quality ponds, the storage below the outlet is the most important consideration. The area and depth of the ponds may differ from the values presented here, storage below the outlet must be provided so that the prescribed pollutant loading of the system is not exceeded.

Amenity aspects are maximized by careful planning in the initial development of any residential or industrial area and by integrating the ponding system into an overall comprehensive SWMP. However, care should be given to make the developer responsible for the design water level. If development plans show a permanent water level, it is strongly advised that the City include some provision in its development agreements making the developer and ultimately the subdivision or development area responsible for maintaining the water level. The City's review should include wording that specifically addresses water quality and hydraulics and not the permanent water level. The Anoka Sand Plain is known for its high infiltration capacity as well as its fluctuating water levels. The City of Ramsey should not be involved in maintaining or engineering water level maintenance.

The wildlife aspects of the ponding areas shall be maximized in design and the proper location of the trail system will allow good access to these areas for wildlife observation.

It is extremely important that each area be re-evaluated at the time of final design to confirm the criteria used in this study and to make any changes that a proposed development may dictate. Special consideration must be given to areas that develop differently than shown in the Comprehensive SWMP, especially when a higher runoff coefficient (higher impervious surface ratio) is likely to result from development.

All storm sewer facilities, especially those conveying large quantities of water at high velocities, shall be designed with efficient hydraulic characteristics. Special attention shall be given during final design to those lines that have extreme slopes and create high hydraulic heads.

The Best Management Practices (BMPs) recommended by the MPCA shall be followed wherever necessary.

~~The City's development ordinances shall be reviewed relative to the required modeling and runoff restrictions. They presently reflect the requirements of the LRRWMO. Further restrictions are recommended to limit post development peak runoff from the10 and 100-year SCS rainfall events to less 75 percent of the predevelopment peak flows from the same relative rainfall events. The proposed decrease in peak runoff is to provide reserve downstream capacity for the increase in volume associated with the increase in impervious surfacing~~.

Rain gardens and infiltration basins are a viable alternative to storage ponds. These structures are encouraged by many review agencies as a way to mimic the original runoff conditions from a site. By incorporating infiltration, the basin provides volume and water quality management. A water quality basin does not need to have standing water, just a permanent "dead-pool" volume to meet the MPCA water quality requirements. The rain gardens and infiltration basins will assist in meeting MPCA regulations. ~~as well as the 75 percent post-development runoff requirement recommended by this report.~~ However, rain gardens and infiltration basins are not recommended in a wellhead protection zone. Figure Nos. 3 and 4 show areas where rain gardens and infiltration may not be the best runoff management solution. City Policy adopted in conjunction with infiltration requirements of the LRRWMO Third Generation Plan prohibits infiltration within the 10 capture zone of each well.

E. **Storm Water Modeling**

1. Runoff

Storm water runoff is defined as that portion of precipitation, which flows over the ground surface during, and for a short time after, a storm. The quantity of runoff is dependent on the intensity of the storm, the length of storm, the amount of rainfall, the type of ground cover, and the slope of the ground surface.

The intensity of a storm is described by the amount of rainfall that occurs during a specific time interval. A specific rainfall amount occurring during a given time interval will statistically recur, on the average, at a certain frequency (usually measured in years). This is called a return frequency. A return frequency designates the average time span during which a single storm of a specific magnitude is likely to occur. For example, a 100-year rainfall event in Ramsey is that 24-hour rainfall amount (7.1~~5.9~~ inches) that recurs, on the average, once in 100 years.

The degree of protection afforded by storm sewer facilities is determined by selecting a return frequency to be used for design based on good economic sense and current engineering practices. See section E.3 for further discussion.

2. Hydrographs

Storm sewer and associated detention basin design is typically based on hydrograph analysis. A hydrograph is graphical depiction of the time versus rate of runoff for a particular area. For example, if a rainstorm started at midnight, the first few minutes is spent with sprinkles and wetting the various surfaces. As the storm intensifies, the rainfall overwhelms the ability of the pavement and adjacent ground to absorb it, and water begins to runoff. At the peak of the storm, the water runs off at its greatest rate. Finally, as the storm passes, the runoff begins to slowly taper off. Figure 2~~8~~9 is an example of a typical runoff hydrograph.

The U.S. Soil Conservation Service (SCS) has performed extensive research in hydrograph analysis and developed a standard hydrograph. Technical Release No. 20 (SCS TR 20) describes a methodology that is generally accepted by the reviewing authorities and hydrologic engineers across the United States. The SCS procedure is based on a standard rainfall hydrograph that is modified by local parameters (i.e., rainfall, soil type, watershed size, watershed shape, the fall

across the watershed, etc.). Based on local conditions, the SCS hydrograph was used for development of the Ramsey storm water models in this plan.

A SCS 24-hour Type II storm distribution with 100-year intensity was used for the design of ponds and drainage systems. The Soil Conservation Service has determined from National Weather Bureau data that a Type II distribution is the storm event recommended for the upper-Midwestern United States.

The SCS hydrograph method is based on sound hydrologic theory and is commonly used to analyze runoff for the design and analysis of flows and water levels. The detailed modeling computations for this plan have been performed using the SSA Modeling Software as developed by Boss International, Inc.

3. Rainfall Probability

Rainfall amounts for hydrologic analyses should be based on:

~~Technical Publication 40 (TP-40) rainfall data for the United States shows that a 5.9-inch rainfall has a statistical probability of occurring once every 100 years in the Ramsey area. This is not to say that a 5.9-inch rainfall cannot occur more often, in subsequent years, or even on multiple occasions within the same year; it is just to say that a 5.9-inch rainfall will occur *on the average* once every 100 years. It is generally more accurate to refer to the 100-year rainfall as that event having a 1 percent chance of occurring in any given year.~~

NOAA Atlas 14: Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin (2013). NOAA Atlas 14, Volume 8, Version 2, *Precipitation-Frequency Atlas of the United States, Midwestern States.* NOAA, National Weather Service, Silver Spring, MD.

More recent updates of these documents shall be used, if available.

The SCS National Engineering Handbook snowmelt data shows the 100-year, 10-day snowmelt event is 7.3 inches over 10 days.

4. Pond and Pipe Design Criteria

To provide reasonable protection of downstream facilities, analysis of flood levels, storage volumes and flow rates for water bodies and detention basins shall be based on the range of rainfall and snow melt durations producing the critical flood levels and discharges. This report recommends a 10-year frequency design for storm sewer pipe using the Rational Method[7]. It is further recommended that pond design be based on the greater of the 100-year, 24-hour frequency SCS rainfall event, or the 100-year, 10-day snowmelt event for overland drainage and pond storage design. In comparing the peak pond elevations for each of these events, the 100-year SCS rainfall event, with the assumption that the infiltration rate was negligible, created the highest peak pond elevations. Hence, throughout the remainder of this report, the peak 100-year pond rates are discussed for typical pond High Water Levels (HWL). These design criteria were selected for the analysis and design of the drainage system for this SWMP. In addition, a 10-inch, 24-hour rain event has also been modeled over the entire city to analyze all

[7] The Rational Method is markedly different than the SCS methodology in that it does not deal with runoff volumes, only flow rates. An explanation of the Rational Method is made later in this report.

ponds, overflow drainage ways and natural channels to evaluate whether the emergency over flows (EOFs) function as intended.

Storm water detention facilities with peak discharge rates less than 2 cfs/40 acres are typically susceptible to high water levels during snowmelt conditions. Special consideration of the snowmelt condition becomes critical for areas, like the Anoka Sand Plain where infiltration dampens the effect of runoff from rainfall. These areas can accept high amounts of rainfall during the warm, summer months, but often remain frozen later in the season and are relatively impervious in the spring during the snowmelt. Hence, snowmelt runoff can be a greater flood hazard than a large summer rainfall due to the impermeable nature of frozen soil. Accordingly, final basin design must consider snowmelt conditions when sizing storage and outlet structures.

When rainfalls exceed the recommended 10-year storm sewer infrastructure design, the excess runoff will be accommodated by ponding in low spots in streets for short periods of time and outflow through overland drainage routes and/or EOFs. With proper planning, this short-term flooding and overland drainage should minimize damage to property that would occur if those facilities were not provided. Drainage routes and EOF locations should be protected and preserved either by ordinance or through recorded permanent easements. Where possible, storm water pond designs shall include an emergency overflow to provide an outlet one-foot below the lowest floor elevation of any adjacent structure for added safety.

The Rational Method is a flow rate design method that ignores volumes and assumes a peak flow to each pipe based on hydrologic parameters such as watershed area, time of concentration, and standard rainfall intensity curves. This design method requires the selection and/or computation of a time of concentration and a runoff coefficient. The time of concentration is the time required for the runoff from a storm to become established and for the flow from the most remote point (in time, not distance) of the drainage area to reach the design point. The time of concentration will vary with the slope and type of surface that the rain falls on. Rational Method design including design methodology and hydrologic references should be based on the Minnesota Department of Transportation Drainage Manual.

A minimum concentration time of fifteen minutes for residential areas and ten minutes for commercial/industrial areas shall be used for design of the trunk storm sewer systems. These minimum times shall be considered in the design of lateral systems. As the storm water runoff enters the system, the flow time in the storm sewer is then added to the concentration time and compared to the downstream drainage area concentration time. The maximum of these values is used downstream, which results in a longer concentration time and peak runoff rate as the flow moves downstream from the initial design point.

5. Land Use Factors in Modeling (Runoff Coefficients)

The percentage of rainfall falling on an area that must be collected by a hydraulic facility is dependent on watershed variables such as soil permeability, ground slope, vegetation, surface depressions, type of development and antecedent rainfall. These factors are taken into consideration when selecting a runoff

coefficient (C) for the Rational Method or a runoff curve number (CN) for use in SCS methodology.

Under ultimate (fully developed) conditions, the values of the coefficient will increase with increases in the amount of impervious surfaces caused by street surfacing, building construction, and grading.

The antecedent moisture condition (AMC) relates to the moisture content of the soil prior to a given storm event. Curve numbers based on land use can be adjusted based on an assumed moisture condition. For purposes of the model, normal antecedent moisture condition (AMC II) was assumed. Curve number values can be adjusted for dry conditions (AMC I) or wet conditions (AMC III).

Curve numbers are also dependent on the type of soil in a given drainage area. Soil types are classified into four basic hydrologic groups as follows:

Group A - Includes soils consisting of deep sand and aggregated silts.

Group B - Includes sandy loam soils.

Group C - Includes soils that are low in organic content and made up of clay loams and soils high in clay.

Group D - Includes soils consisting of heavy plastic type clay soils.

Curve numbers that were assumed in the development of the model were based on the hydrologic soil group for each watershed based on the information contained in the County Soil Survey. Development plans shall consider post-development site soil conditions when choosing runoff curve numbers for final design.

Curve numbers (CN) are given in SCS TR-55. Average CN values for each land use type are used in the design of the storm drainage facilities in undeveloped areas. For the modeling of existing facilities, CN values were determined for each type of development and current zoned land use in each subwatershed. In general, the unpaved, non-wetland areas were modeled with curve numbers that most closely represent the Anoka Sand Plain. The curve numbers were then adjusted to reflect the percentage of impervious surfacing.

It should be noted that if land use changes to more or less impervious surfacing than the model, it will affect the model and updates may be needed.

V. GOALS AND POLICIES

Problem Statement

The increase in urbanization, with its associated runoff and sediment-related pollutants will have an impact on wetlands and other water resources including the Rum River and Mississippi River.

Mission Statement

The City of Ramsey, in cooperation with the LRRWMO, Anoka County, state and federal agencies, will prepare a watershed plan which will accommodate anticipated community development and redevelopment while providing clear direction to the developers for controlling the quality and quantity of storm water runoff and properly managing surface and groundwater resources and the physical habitat of existing wetlands, lakes and the Mississippi and Rum Rivers in a consistent fashion. The City is committed to a goal of no adverse impact to, and nondegredation of, its water resources.

Goals

This plan identifies several specific goals to control the City's water resources planning and management functions. The goals of this plan were established in accordance with the purposes of the water management programs required by Sections 103B.201 to 103B.251.

Policies

Each goal has several corresponding policies. A policy is a governing principle that provides the means for achieving established goals.

Standards

Standards are an extension of the policies. They provide specific, detailed guidance regarding water management practices. Plan standards are included in the Implementation Program (Section VIII) of this document.

A. Water Quantity

The following runoff quantity goals and policies are considered part of this plan.

Goal 1: Control flooding and minimize public capital expenditures.

- Policy 1.1: Natural storm water storage areas and manmade detention areas should be utilized to control flooding.
- Policy 1.2: The storage capacity of the natural drainage system will be utilized to control rates of runoff. The City will jointly define and adhere to flow rates at municipal boundaries as established in this plan.
- Policy 1.3: The City will pursue regional detention wherever targeted land acquisition opportunities arise.
- Policy 1.4: All hydrologic studies will be based on standard hydrologic criteria and ultimate or anticipated development of the entire tributary drainage area.

Policy 1.5: Major storm water facilities (i.e., ponds, pond outlet systems, and major conveyance systems) will be designed using a return period of 100 years.

Policy 1.6: The peak outflow from all new developments shall be limited to ~~75 percent of~~ the existing peak outflow for the 2-, 10- and 100-year SCS 24-hour rainfall events.

Policy 1.7: All minor drainage system analyses and design (i.e., piped collection systems and minor conveyance systems) will be based on a return period of 10 years unless otherwise specified. The minor drainage system pipe will be sized using the full gravity flow capacity of the pipe. Pressure flow based on surcharging the upstream manhole or structure to near the street will not be allowed.

Policy 1.8: Detention facility design will include a paved access route or a "Netlon" or approved equal stabilized access route; and dedicated right-of-way, outlot access and/or drainage and utility easement for maintenance of the outlet structure and to the facility in general.

Policy 1.9: Fences will be restricted from crossing drainage and utility easements.

Policy 1.10: The design of storm water facilities will consider and identify location(s) of overflow(s) that prevent property damage to adjacent properties from extreme water levels.

Policy 1.11: Minimum building elevations should be above designed ~~or~~ designated flood levels. The minimum building floor elevation shall be two (2) feet above the 100-year level or 1-foot above the EOF. The 100-year level shall be on the highest 100-year level resulting from a single event analysis; the 100-year, 10-day snowmelt event; a multiple day runoff event analysis, or the critical event analysis.

Policy 1.12: Landlocked runoff basins shall be sized to handle back-to-back 100-year ~~SCS~~ Atlas14 24-hour rainfall events, the 10-inch SCS 24-hour rainfall event or the 100-year, 10-day snowmelt snow melt event, whichever produces the higher peak pond elevation (Landlocked HWL). The minimum building floor elevation around landlocked basins shall be two (2) feet above the Landlocked HWL.

Policy 1.13: Emergency overflows or outlets to drainage systems will be provided to any landlocked area if the available storm water storage capacity is inadequate to prevent flooding of residences and if the available downstream conveyance system capacity is adequate to accept additional flow.

Policy 1.14: The City will have standard hydrologic design criteria for all storm water systems to assure consistency.

Policy 1.15: The City will perform maintenance measures to assure proper function of the drainage system.

Policy 1.16: The City will adopt ordinances that control peak runoff consistent with standards and recommendations in the Minnesota Stormwater Manual.

B. **Water Quality**

Goal 2: Achieve water quality standards in City lakes, streams, rivers, and wetlands consistent with intended use and classification, which include quantifiable limits on specific pollutants (i.e., phosphorus, turbidity, excess nutrients, ~~etc~~etc.). The City's ultimate goal is to meet the standards for the designated use of each water body.

Policy 2.1: The ranking system established by the LRRWMO shall dictate intended use and water quality standards.

Policy 2.2: Future outlets to DNR protected waters must first pass through a sediment pond/trap prior to discharging into the protected water body.

Policy 2.3: Phosphorus loading to a drainage system or water body will be reduced to the greatest practical extent through the use of Best Management Practices (BMPs).

Policy 2.4: All construction plans developed for the maintenance and/or improvement of water quality will include a detailed access and maintenance plan and shall require approval by the City.

Policy 2.5: A community education program relating to preserving and improving water quality will be developed and implemented.

Policy 2.6: All on-site waste water systems will be the responsibility of the owner.

Policy 2.7: A water quality plan outlining education programs, water quality monitoring needs, water quality modeling requirements, phosphorus budgets for subwatersheds, and any other water quality issues should be developed and implemented. The City-wide SWPPP and MS4 permit already addresses the education, monitoring, maintenance, good housekeeping, illicit discharges and construction erosion control.

Policy 2.8: The LRRWMO and the City should take an active role in implementing the necessary policies to allow development of regional water quality ponds.

~~Policy 2.9: A vegetated buffer strip is required between natural water bodies and improved areas to limit phosphorus loadings in accordance with the storm water and drainage design performance standards of this plan.~~ [8]

[8] ~~Reference the Current Wetland Buffer, Shoreland, Critical and Scenic River Ordinances~~

Policy 2.~~10~~9: The City will perform maintenance measures to minimize pollutant loadings to local water bodies.

Policy 2.~~11~~10: The City will adopt best management practices for development that will result in TSS and TP reductions of 90% and 60%, respectively.

Policy 2.~~12~~11: The City will adopt best management practices for redevelopment that will result in TSS and TP reductions consistent with the Minnesota Stormwater Manual.

Policy 2.~~13~~12: The City will integrate their Stormwater Pollution Prevention Plan into their local water management plan, in accordance with MPCA requirements and schedules.

Policy 2.~~14~~13: The City will revise its Stormwater Pollution Prevention Plan to include the required nondegredation information and summarize or integrate that information into its local water management plan when the nondegradation rules are finalized and become a mandatory part the Municipally Separate Storm Sewer System (MS4) permit.

C. **Recreation, Fish and Wildlife**

Goal 3: Protect and enhance water recreational facilities, fish and wildlife habitat.

Policy 3.1: Natural areas, wildlife habitat and wetlands to be protected during construction should be clearly marked and/or fenced in the field.

Policy 3.2: ~~Buffer zones of natural vegetation are required around new ponds and encouraged in privately owned areas around existing ponds and wetlands located within current wildlife corridors to provide habitat for wildlife in accordance with the Wetland Management Plan.~~

~~Policy 3.3:~~ The water level fluctuation of a wetland or pond shall be maintained consistent with the management function of the water body. Wetlands used for stormwater overflow purposes shall be limited to a maximum bounce of 2-feet between the NWL and HWL.

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Policy 3.~~4~~3: The City has already assessed the functions and values of all wetlands over ¼-acre in size. ~~Through the Wetland Management Plan, the City will require documentation of existing habitat, both graphically and in writing by the owner or developer, prior to modifying wetlands or stream banks, or constructing storm water facilities. Remaining habitat will be maintained and enhanced, or new habitat will be developed to replace lost habitat.~~

Policy 3.~~5~~4: The City supports programs for controlling purple loose strife.

Policy 3.~~6~~5: The City supports programs for controlling Eurasian water milfoil.

Policy 3.6~~7~~: The City supports programs for controlling Curly leaf pond weed.

Policy 3.~~8~~7: Activities related to recreation, fish and wildlife should be consistent with the Anoka County Regional Park objectives and the City's comprehensive plan.

~~Policy 3.9: The existing wetland ranking system (i.e., Protect, Manage 1, Manage 2 and Manage 3), the Wetland Management Plan, and all subsequent revisions established by the LRRWMO shall dictate allowable wetland management activities.~~

D. **Public Participation, Information and Education**

Goal 4: Increase public participation and knowledge in management of the water resources of the community.

Policy 4.1: The City must call an annual meeting~~hearing~~ to discuss its SWPPP as part of its MS4 permit. This opportunity will be used to discuss water resource issues affecting the City.

Policy 4.2: The City will utilize available resources and input from the public to address local water resources issues.

Policy 4.3: Citizen lake water quality monitoring is encouraged and supported by the City.

Policy 4.4: The City supports Anoka County's recreation and educational programs related to the water resources of the community.

Policy 4.5: The City will support natural environment programs in the public schools.

E. **Public Ditch System**

Goal 5: Maintain the current ditch system to convey water and maintain the current defined maximum flood levels to protect businesses and residences.

Policy 5.1: The City will continue to maintain public ditches to provide protection of private property and structures from flooding, provided that such maintenance is in accordance with the Minnesota Wetlands Conservation Act, Minnesota Statute 103E governing agricultural drainage, is acceptable to the U.S. Army Corps of Engineers, and does not adversely affect the value of wetlands or water quality.

Policy 5.2: With the exception of County Ditch 66 and County Ditch 43 which have been turned back to the City, Anoka County is recognized as having authority over all public ditches within the watershed in accordance with Minnesota Statute 103E.

F. **Groundwater**

Goal 6: Promote groundwater recharge and prevent contamination of the aquifers.

Policy 6.1: Anoka County is recognized as the lead agency regarding groundwater controls.

Policy 6.2: Recharge areas identified by Anoka County shall be protected from adverse development and from potential contamination.

Policy 6.3: Infiltration of the first 1.0-inches of runoff from new impervious areas will be required wherever the soils are appropriately permeable (i.e., hydraulic soil types A and B) to promote groundwater recharge and volume controls. This is subject to proximity to wellhead protection zones as noted earlier in this report.

Policy 6.4: Whenever practical, ponds shall be designed as "wet ponds" with storage volume below the outlet to promote infiltration and/or groundwater recharge.

Policy 6.5: The use of grassed waterways shall be encouraged to maximize infiltration. Proper grades shall be maintained or underdrain systems installed as part of an overall site plan to insure positive drainage.

Policy 6.6: Any spring area should be identified in the field, denoted on maps by the City and protected from development within the watershed.

Policy 6.7: The appropriate jurisdiction shall use both regulatory (ordinances, permits, etc.) and non-regulatory (Best Management Practices) tools to protect the land area within designated wellhead protection areas.

G. **Wetlands**

Goal 7: Maintain the amount of wetland acreage and try to increase the wetland values within the watershed.

Policy 7.1: Use and function of all wetlands greater than ¼-acre in size has been determined as part of the~~is~~ 2008 plan preparation.

Policy 7.2: Restoration of poor quality wetlands shall be prioritized.

Policy 7.3: The City or Anoka County shall identify areas that can be used for wetland mitigation.

Policy 7.4: Wetland mitigation criteria will be established consistent with the Minnesota Wetland Conservation Act of 1991 and subsequent amendments and associated rules thereto (e.g., Minnesota Rule 8420), state and federal regulations, the LRRWMO and the needs of the City.

Policy 7.5: Alteration of wetlands is discouraged unless for restoration. Alteration may be allowed on an individual basis if the alteration can be properly mitigated in accordance with the Wetland Conservation Act (WCA). Allowable alternatives must comply with WCA sequencing requirements including, in order, avoidance, minimization and mitigation. In general, it will require a full Technical Evaluation Panel meeting and majority approval before any wetland impact is allowed.

Policy 7.6: Wetland banking opportunities will be pursued by the City and/or the LRRWMO in accordance with the Wetland Conservation Act.

~~Policy 7.7: The City has prepared, as part of this document, a Wetland Management Plan. The Wetland Management Plan incorporates a function and value assessment for wetlands. Pretreatment of storm water prior to discharge is required for discharge into all wetland types. Buffers should be consistent with the functions and values identified in the plan. The use of widened, native vegetation buffers for high quality wetlands shall be written into the Code for new developments.~~

~~Policy 7.8: The use of native vegetation for buffers in undeveloped and previously developed areas is strongly recommended in the Wetland Management Plan.~~

~~Policy 7.9: The City will review its policy regarding wetland replacement ratios to determine whether wetland replacement ratios should be based on wetland classification (higher replacement amounts can be required for higher valued wetlands).~~

~~Policy 7.10: The City will review its policy regarding wetland buffers to determine whether wetland buffers should be based on wetland value; the higher the value of the wetland the greater width required, with a buffer width listed based on wetland classification.~~

H. **Erosion Control**

Goal 8: Prevent soil erosion.

Policy 8.1: The City will protect natural vegetation to the greatest extent possible.

Policy 8.2: Soil erosion shall be prevented through the installation of erosion control practices in accordance with MPCA's Best Management Practices Handbook.

Policy 8.3: Topsoil stockpiled for reuse shall be protected from erosion.

Policy 8.4: It shall be the responsibility of the developer/contractor to keep streets and property adjacent to construction areas free from sediment carried by construction traffic at site entrances and access points, from sediment laden site runoff and blowing dust.

Policy 8.5: The MPCA Storm Water Permit Program for Construction Activities shall be followed.

Policy 8.6: The City has adopted an erosion and sediment control ordinance including provisions that are consistent with NPDES Construction Stormwater permit and its MS4 permit requirements.

I. **Development Standards**

Goal 9: Residential Grading

Policy 9.1: Residential lots shall have a minimum surface slope of 2-percent in all directions. Lesser slopes, between 1-percent and 2-percent may be allowed with a certificate of grading.

Policy 9.2: Four~~Six~~ inches of topsoil shall be placed in the turf restoration areas of all new residential lots.

Policy 9.3 Where residential lots are newly graded and there is no immediate plan for new housing within the lot, the entire lot shall be covered with 6-inches of topsoil and seeded in accordance with the following schedule:[9]

Type of Slope	Time*
Steeper than 3:1	7 days
10:1 to 3:1	14 days
Flatter than 10:1	21 days

* The maximum time an area can remain open when the area is not actively being worked.

Policy 9.4 Bluff protection ordinances and shoreland protection ordinances shall govern steep sloped areas.

J. **Regulatory Responsibility**

Goal 10: Recognize the regulatory authority of other local, state and federal entities.

Policy 10.1: The City is responsible for establishing and implementing a local permitting program for water resources management.

Policy 10.2: Other governmental agencies with watershed management responsibility include:

- The Lower Rum River Watershed Management Organization (LRRWMO)
- Minnesota Department of Natural Resources (DNR)
- United States Army Corps of Engineers (USCOE)
- Minnesota Board of Water and Soil Resources (BWSR)
- Minnesota Pollution Control Agency (MPCA)

Policy 10.3: The WMO and the City will require a permit for certain activities, as described in this plan.

K. **Finance**

Goal 11: Equitably finance water resources.

[9] Minnesota Pollution Control Agency, National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS), Application for General Storm-water Permit for Construction Activity (MN R100001)

Policy 11.1: All developments should, to an extent determined by the City, provide land, funding, or a combination of both for management of local water resources, which includes development of regional facilities and planning studies.

Policy 11.2: The City may establish a fee structure charged to developers for analyzing the impacts of the proposed development.

Policy 11.3: The City has established a fee structure charged to developers for constructing capital improvements (i.e., trunk conveyance systems).

Policy 11.4: The WMO should establish an equitable cost allocation formula for water resource project implementation that affects more than one unit of government.

Policy 11.5: Grants may be sought by the City to fund watershed related projects.

Policy 11.6: The City should investigate the feasibility of alternative funding sources, such as Ad Valorem Taxes, bond sales, and user charges (storm water utility).

Policy 11.7: The City should encourage donations and in-kind contributions of public and private organizations and the school systems for plan implementation.

Policy 11.8: The City shall investigate and evaluate other funding mechanisms that support implementation and enforcement.

L. **Records Management and Documentation**

Goal 12: The City shall preserve historic data, records, and files pertaining to the water resources of the LRRWMO.

Policy 12.1: The City should develop a classification to be recorded for each new detention area, including the basis for the classification.

Policy 12.2: Engineering calculations will be required in a standard format.

Policy 12.3: Past studies will be documented and filed by the City.

Policy 12.4: Immediately after extreme rainfall events, high water elevations should be noted and surveyed by the City.

Policy 12.5: The City will develop a history of flooding and water quality problems by noting past events and recording current floods.

Policy 12.6: The City will record changes in water quality, such as increased aquatic vegetation, changing thermal conditions, increased sedimentation, reduced fish numbers, and fish kills.

Policy 12.7: The City will perform regular wet storage volume surveys of its stormwater quality ponds on a 10-year rotating basis. If the water quality storage volume is being lost to sedimentation, the City will clean out the pond to reestablish the design storage

volume below the outlet and consequently reestablish the design residence time.

Policy 12.8: The City will document all items/BMPs provided in the SWPPP and MS4 permit.

VI. ASSESSMENT OF PROBLEMS AND CORRECTIVE ACTIONS

This section assesses the water-related problems in the City, prioritizes the problems and includes actions to adequately solve each identified problem.

The City held a public open house on July 11, 2007 to gather input on water resources-related problems. A public notice was published in accordance with City policies. Four residents attended the open house. The feedback that was received was primarily associated with the desire to protect the City's natural beauty including wetlands, wildlife habitat and wildlife corridors. The primary concern was that continued and uncontrolled development would adversely impact the current environment. All attendees expressed satisfaction that the SWMP is intended to protect these features.

City staff also compiled a list of nuisance flooding areas either noted by maintenance staff or by resident complaints.

Figure 9 highlights all known nuisance flooding areas.

A. Specific Lakes and Streams with Water Quality Problems

Table 15 in Section IV, page 176 of this report, lists the current (~~2006~~2014) MPCA 303d Impaired Waters in Ramsey. There are also waters downstream of the City of Ramsey, such as Lake Pepin, that are impaired. The process to remedy the impairment includes establishing a Total Maximum Daily Load (TMDL) allocation to each contributor to the problem. A TMDL is a calculation that determines the allowable pollutant load that can be discharged into the impaired water so that the limited load will ensure that the water improves to levels where it is no longer impaired. The typical process is initiated by the MPCA and includes a series of stakeholder meetings to formulate viable solutions and mutually work out a reasonable allocation of acceptable pollutant loading.

Since a TMDL study has not been completed for these waters, the City should identify the priority it places on addressing impaired waters and how the City intends to participate in the development or implementation of TMDL projects. Furthermore, the City should volunteer to participate in the stakeholder process.

Once a TMDL study is completed for the impaired water, the City must include, in this SWMP and its City-wide SWPPP, an implementation strategy including funding mechanisms that will allow the implementation of the TMDL requirements. As MPCA completes its TMDL process for each impaired water, the implementation of the measures to meet the TMDL will immediately become a priority item for the City of Ramsey.

B. Flooding and Storm Water Rate Control Issues

In discussing the current runoff conditions with City Staff and the few people that attended the open house on the proposed management plan, no significant flooding issues were identified. This may be due to the fact that the open house was held during a drought year, with no recent flooding problems. City staff marked known nuisance flooding areas on a map and prepared copies of all flood related complaints filed in the last 15 years. Figure 9 is a map of all noted flooding areas either noted by staff or associated with a resident complaint.

The lake levels in Lake Itasca are historically variable, and have ranged from elevation 863.24 to elevation 871.9 with an average water level of 867.7. The DNR protects the lake to its Ordinary High Water Level of 871.4. To protect the properties around the lake, an emergency overflow should be established above the DNR protected level of 871.4. The overflow may be in the form of a pipe to the south or southeast, or it may be a new outfall to the Mississippi River.

The storm water modeling performed for the area shows few opportunities for property damage associated with rainfall. Ponding areas having a potential for property damage are shown in red on Figures 10~~1~~ through 23. The relatively low percentage of potential property damage is presumed to be attributed to the high permeability of the Anoka Sand Plain and proper storm sewer system design.

Because of the pervious nature of the Anoka Sand Plain, the City should be cognizant of the impact that a significant increase in impervious surfacing and mass grading can have on runoff conditions. The addition of significant amounts of impervious surfaces and the reduced permeability associated with the soil compaction in mass grading without a reasonable attempt to restore and duplicate the current infiltration pattern could create significant increases in runoff volumes and downstream flooding.

The City will review and modify its current development ordinances to encourage infiltration and require soil ripping of mass grading to compensate for lost infiltration conditions as well as requiring extended retention ponding to mitigate and compensate for increases in runoff. Innovative solutions to the storm water runoff volume increases associated with the increase in impervious surface will be investigated. Potential solutions include pervious pavements, rain gardens and infiltration basins among others.

An integral part of this SWMP is the comprehensive storm water runoff modeling of the existing conditions throughout the entire City. This modeling will provide a baseline for comparison purposes as new developments change the drainage pattern. With this modeling information, City staff can readily review the cumulative impacts of large developments for effects on baseline conditions across the entire city.

SSA software was used in the comprehensive modeling. This software is based on the industry accepted EPA SWMM process and St. Vennant equations. The model can be used to input actual rainfall events from rain gauges and can model the transport of pollutants through the system. This will be very useful in evaluating the BMP measures to address future TMDLs.

The City received complaints about flooding in the 1980's. Staff reviewed the complaints and determined that several were solved by later construction of storm sewer systems as the City developed. The areas that were not solved are shown on the flooding area map.

The City experienced high water levels in 2011 and 2014 caused by high snowfall over the winter and heavy spring rains. Staff logged the complaints received in each year. The lists were presented to the Public Works Committee for review.

The 2011 complaints sorted into three (3) categories, clean existing drainage ways and structures, water ponding outside of existing easements, and water ponding in existing easements. The action where water was ponding in existing easements the action was homeowner education on the purpose of drainage and utility easements. The action where existing drainage was and structures needed cleaning was to add the work to the Public Works action list. The action where water was ponding outside of existing easements

was a combination of performing a detail study of each area using Consultant Pool and Staff resources. Cost estimates were generated from the studies and presented to the City Council. Several projects were selected for construction, the remainder were deemed infeasible at that time.

The 2014 complaints were also studied. Staff determined that the majority of these complaints would require additional study, these areas could not be drained without causing high water problems on downstream properties. The City wide storm water model is being used in the review of possible solutions to these problems.

C. **Impacts of Water Quality and Quantity Management Practices on Recreation Opportunities**

The current ~~and proposed~~ City ordinances together with the LRRWMO, County, regional, state and federal rules and laws are designed to protect the existing land and water resources within the City of Ramsey. The City believes that it can allow continued development while maintaining or improving its resources including water quality and recreation opportunities. With the implementation of this plan and the recommended policy and ordinance changes, the developers will be held responsible for protecting water quality, mitigating the runoff quantity and ensuring that there will continue to be recreation opportunities in Ramsey. In addition, the City's Storm Water Pollution Prevention Plan is designed to educate the public to better protect the city's water resources, to implement temporary and permanent erosion and sediment controls for new developments, to ensure good housekeeping of the City's municipal operations, and to detect and eliminate illicit discharges.

D. **Impacts of Stormwater Discharges on Water Quality and Fish and Wildlife Resources**

As stated in C above, the current and proposed ordinances and the City's SWPPP are designed to protect the existing land and water resources within the City of Ramsey. This includes measures that are designed to maintain or improve the habitat of the fish and wildlife throughout the area.

E. **Impacts of Soil Erosion on Water Quality and Quantity**

As part of the City-wide SWPPP and MS4 permit, the City established an erosion and sediment control ordinance governing construction practices. The City will also evaluate existing erosion control problem areas that may not be associated with recent construction and formulate mitigation plans to rectify those issues. Given increased regulation of the typical causes of soil erosion and sediment transport, it is anticipated impacts of soil erosion on water quality in the Ramsey area will be greatly diminished.

The SWPPP and MS4 permit also call for the annual inspection of required structural BMPs (structural BMPs are physical devices designed to trap or filter pollutants from runoff or reduce runoff velocities; an example being silt fence). Maintenance is included in the City's annual budget to ensure that structural BMPs continue to work and provide the design storage needed to ensure continued flood mitigation.

F. **General Impact of Land Use Practices**

As stated in Section VI.B, increases in impervious surfacing will require mitigation to reduce the impacts related to change in permeability from the natural Anoka Sand Plain

conditions. The preferred mitigation method is to encourage infiltration to duplicate the existing condition. ~~This preference will be incorporated into the development ordinance revisions that will be made to meet the recommendations of this SWMP.~~ In addition to infiltration, the City will consider low impact alternatives and oversized regional retention basins to mitigate potential downstream flow changes.

The City ~~is~~ also prepared~~ing~~ a Wetland Management Plan along with this the 2008 SWMP that includes a function and value assessment of all wetlands in excess of ¼ acre in size. The Wetland Management Plan was adopted then rescinded by City Council. The requirements of the Wetland Management Plan are not being enforced; however, the data is available for review. ~~The Wetland Management Plan requires the pretreatment of storm water from new developments prior to discharge into any wetland. Vegetative buffers will also be included in the Wetland Management Plan and development ordinance. Buffer widths are proposed to increase with higher quality wetlands based on the functions and values identified in the plan. The use of native vegetation as buffers is proposed for medium to high quality wetlands.~~

~~The current Ramsey Wetland Buffer Ordinance calls for buffers ranging from 5 to 50 feet. Ramsey currently has approximately 4,000 acres of wetlands. In contrast, the current Wetland Management Plan recommends a 25 foot buffer for Manage 2 and Manage 3 wetlands and a 50 foot buffer for Protect and Manage 1 wetlands. If an average of 25 feet of buffer is applied around all of these wetlands, approximately 600 acres of easement area will be required. For comparison, approximately 1,250 acres of easement area is required to establish a 50 foot buffer.~~

G. **Adequacy of Existing Regulatory Controls**

~~With the proposed ordinance revisions,~~ T~~t~~he City of Ramsey believes it has adequate policies in place to self-regulate the anticipated growth without sacrificing its abundant water resources. In addition to its ordinances, the existing greater area regulatory controls of the LRRWMO, BWSR, the Metropolitan Council, the DNR, the U.S. Army Corps of Engineers, Anoka County, etc. are more than adequate to properly manage or mitigate adverse impacts on public waters and wetlands.

The City must rely on the regulatory authority of Anoka County, the LRRWMO and the regional, state, and federal plans to monitor and control the runoff entering the City from outside its jurisdiction. The City understands that it will also need to address issues brought to its attention by these outside regulating authorities.

The City is also concerned that the ordinance revisions, various permit fees and charges needed to finance the proposed changes will adversely affect development in Ramsey. To ensure that Ramsey has an equal chance of attracting development, the City must rely on outside agencies and WMOs in the area to regionally enforce similar environmental requirements with comparable financing obligations.

H. **Adequacy of Programs**

The City of Ramsey believes that the BMPs promised in its City-wide SWPPP and MS4 permit are designed to adequately:

1. Limit soil erosion and water quality degradation
2. Maintain the tangible and intrinsic values of natural storage and retention systems

3. Maintain water level control structures

I. **Adequacy of Capital Improvement Programs**

The storm water improvements recommended in the City's 5-year Capital Improvement Program are designed to address and correct problems related to:

1. Runoff Quantity
2. Water Quality Management
3. Fish and Wildlife Habitat and Public Waters and Wetland Management
4. Recreational Opportunities

J. **Future Potential Problems**

The greatest potential for future problems with storm water planning is associated with the ever-growing impervious footprint that is inevitable with growth. As stated earlier, highly pervious nature of the Anoka Sand Plain means that the cumulative effect of development could result in drastically increased runoff volume and flow rates.

The recommended ordinance revisions are designed to:

1. Encourage infiltration and soil ripping of newly graded sites so that developed sites can adequately mimic unimproved site runoff and flow rates.
2. Limit post development runoff rates to ~~75 percent of~~ the existing condition so that multiple developments do not cause cumulative increases in the downstream condition.

In addition, regional pond modifications are also recommended where plausible because of the economic and runoff management capabilities of larger scale hydrologic systems. By implementing the recommendations in the SWMP, these potential future problems are being anticipated and adequately addressed within the City of Ramsey. As stated earlier, the City must rely on the regulatory authority of Anoka County, the LRRWMO and the regional, state, and federal agencies to monitor and control the runoff entering the city from outside its jurisdiction. The City understands that it will also need to address issues brought to the attention by these outside regulating authorities.

VII. FINANCIAL CONSIDERATIONS

Typically a Capital Improvement Program (CIP) is an itemized program for at least a five-year prospective period. The items and associated costs are subject to at least biennial review. The benefits include setting forth the schedule, timing, and details of specific contemplated capital improvements by year, together with their estimated cost, the need for each improvement, financial sources, and the financial effect that the improvements will have on the local government unit or watershed management organization.

The City recognizes that the detailed modeling exercise of the storm water system for the city laid out many areas of potential full pipes, inadequate flow structures, and potential flooding issues that will need to be constantly re-evaluated as more detailed information is available for the system and as the city grows. As this re-evaluation occurs, the CIP will need to be updated to reflect new projects.

A. 5-year Capital Improvement Program

The current 5-year Capital Improvement Program includes the following:

1. Annual Sediment Pond Cleaning.....$125,000
2. County Ditch 43 Cleaning.....$1850,000
3. ~~Ramsey Town Center (RTC) Armstrong Boulevard .....$150,000~~
4. ~~4.~~3. COR~~RTC~~ Bunker Lake Boulevard (Armstrong Blvd to Ramsey Blvd).. $~~580~~560,000
5. ~~Wetland 656W Outlet .....$90,000~~
6. ~~6.~~4. West Mississippi Outlet .....$~~250~~680,000
5. ~~Mississippi Subdistrict 1, Phase II.....$450,000~~
6. Whispering Pines Estates Plat 2 Storm Sewer $330,000
7. Annual Drainage Enhancements $675,000
8. Stormwater Drainage Improvements –Treatment before discharge to River.$410,000
9. Storm Sewer South of Bunker Lake Boulevard -COR $250,000
10. Garnet Street Reconstruction $198,000
11. Reconstruction of Andrie Street/ 164th Avenue.....$1,020,600
12. Reconstruction of Streets -Ford Brook Estates $237,600
13. Alpine Drive Reconstruction.....$60,700
14. Reconstruction of Streets – Stanhope Terrrace and North Forty.....$587,000
15. ~~7.~~

Total Current 5-year Plan Expenditures .....$5,389,500~~1,775,000~~

~~In addition to the current 5-year Capital Improvement Plan, the following improvements are recommended to rectify the potential problems identified in Section VI of this report:~~

1. ~~Ongoing storm system maintenance and infrastructure repairs.....$50,000/year~~
2. ~~Retrofitting BMPs in previously developed areas .....$100,000/year~~
3. ~~Overflow outfall construction .....$75,000/year~~
4. ~~Miscellaneous culvert installation/replacement .....$25,000/year~~

~~**Total Additional 5-year Plan Expenditures .....$1,250,000**~~

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Commented [LL1]: These are included in the CIP

The financial impact of implementation of the proposed regulatory controls and programs identified in Section VI is anticipated to include the following:

~~1. The Preparation of This SWMP ..... $159,000~~
~~2. Revising & Adopting the Storm Sewer Trunk Fees ..... $50,000~~
~~3.~~16. Adopting and Enforcing the SWMP Local Controls and Standards[10] $25,000/year
~~4.~~17. SWPPP Annual Cost and Implementation[11] $100,000/year
~~5. Implementing the Wetland Management Plan[12] ..... $120,000/year~~
~~6.~~18. Current Five Year Capital Improvements ..... $~~1,775,000~~5,389,500
~~7. Total Additional Five Year Capital Improvements ..... $1,625,000~~

Total 5-year Financial Impact ..... $~~4,675,800~~6,014,500

Although the cost associated with these recommendations can be financed locally, the City will pursue all opportunities for outside funding. Without outside financing the City will need to finance the adoption of, and enforcement of, the local controls and standards, implementation of the specified programs, and capital improvements recommended in this SWMP using one or more of the following:

1. Increasing the storm water development charges (storm water trunk fees)
2. Increasing the storm water utility fees
3. Increasing the general levy (within levy limits)
4. Creating a storm sewer assessment district
5. Accessing funds from other City projects and funds

Outside funding is greatly desired as the impact of increasing these taxes, fees and charges will increase tax burden against homes and farmsteads, increase the utility burden for all parcels or postpone other necessary improvements currently scheduled in the City's Capital Improvement Plan.

The following are potential sources of outside funding that may be available to assist in the financing of the various storm water related issues:

1. Minnesota Clean Water Legacy funds
2. Clean Water Partnership Funds
3. Clean Water Act, Section 319 funds, administered by the MPCA
4. Minnesota Public Facilities Authority (PFA) grants and low interest loans

There is significant competition for these limited funding sources. If these sources are pursued by the City, it will likely involve innovative treatment technologies in addition to timely requests for funding.

In 2007, the deadline for requesting funds was in August for the Section 319 funds and the deadline for requesting funds was in November for Minnesota Clean Water Legacy funds. For PFA funding, the PFA prepares an annual Intended Use Plan (IUP) for

[10] Estimated cost is based on one half-time employee at salaries (plus benefits) of $50,000 per year.
[11] Estimated cost is based on two fulltime employees at salaries (plus benefits) of $50,000 per year.
~~[12] Estimated cost is based on an arbitrary annual wetland buffer easement acquisition cost of $100,000 which may be revised by the City Council depending on available funds, plus $20,000 (800 person hours at $25/hr) in estimated permit review costs.~~

each program that lists the projects eligible to apply for loans. A written request must typically be submitted to the PFA by June to request placement on the IUP. The City must request placement on the Intended Use Plan acceptance for PFA funding.

B. **Local Financing Options**

1. Development Charges or Trunk Fees

According to City of Ramsey Code Section 4.50.03, trunk storm sewer cost shall be assessed on an area basis as determined by City resolution. Total lateral cost is assessed to a development on an area basis. In lieu of paying a future charge, developers may, before a final plan is signed, agree to pay the City the storm drainage improvement charge established by Council resolution. The charge shall be based upon the number of total gross square feet in the plat. The developer shall be given a credit of over-sizing storm improvements in the plat. The charges collected shall be deposited in a special storm drainage improvement fund and shall only be used to pay for storm drainage financing and improvements. Maintenance of the storm sewer system is paid for through current revenue generated from the Storm Water Utility Fund.

Commented [LL2]: Meeting with Joe Langel Next week. This section of Code did not get included in Municode.

Since the recommended additional costs are predominantly associated with continued new development, it is presumed to be fair and equitable to have the developers pay for their impacts. Hence, the continued use of a storm water area development charge (or trunk fee), based on the cost of rectifying the downstream impact associated with the development is recommended.

In Ramsey's case, it may be more prudent to calculate the development charge based on the area of new impervious surface created and the amount of compensatory mitigation through infiltration efforts. If an impervious area charge is considered over a blanket development area charge, the City should carefully weigh the desired appearance of new developments against the natural tendency of developers to devise improvements that have the least cost. Low impact development should be considered, but the need to incorporate safety, snow storage and emergency vehicle access must also be factored into the development.

2. Increased Storm Water Utility Fees

According to City of Ramsey Code Section ~~4.80~~58-194, the City may impose just and reasonable charges for the use and availability of storm sewer facilities. Rates and charges for the use and availability of the system shall be determined through the use of a Residential Equivalent Factor ("REF"). For the purposes of the Ramsey City Code, one REF is defined as the ratio of the average volume of surface water runoff coming from one acre of land and subjected to a particular use, to the average volume of runoff coming from one acre of land subjected to typical single-family residential use within the City during a standard five-year rainfall event. Rates and charges for the use and availability of the system shall be determined through the use of a Residential Equivalent Unit ("REU"). For the purposes of the Ramsey City Code, one REU is defined as the product of the acreage of a particular parcel multiplied by the REF. The REF shall be based on the relative runoff generated by any land use compared to the expected runoff from a typical half-acre single-family dwelling. This relationship shall be

interpreted as a function of the percent of the total lot area that is impervious and shall be applied as determined in City of Ramsey Code ~~Section 4.80~~.

The City Storm Sewer Utility fee is intended to finance infrastructure maintenance, upgrading, reconstruction and new construction serving previously developed areas. It is not typically used to finance retrofitting the existing system to accommodate new developments. Most cities require the developer to finance the entire new storm sewer system associated with the development. Then, once the new system is accepted and turned over to the City, the municipal maintenance funds (typically storm sewer utility funds) are used to maintain the new system.

3. Increasing the General Levy

   If the City has not yet reached its levy limits, financing could come from increases in the general tax levy across Ramsey. This option is generally not favored because it may duplicate costs for property owners who have either directly or indirectly already financed their own developments. Unless tax expenditures for storm water needs can be uniformly spread to all properties, political opposition should be expected from entities that have already invested in storm water facilities.

4. Creating a Storm Sewer Assessment District or Storm Water Tax District

   If a watershed is well defined and the greater majority of the property owners have a share in the benefit of the proposed storm sewer improvement, the City could form a storm water assessment district. When improvements or repairs are needed within the district, an advertisement hearing process is required similar to that used for assessments in Minnesota Statute 429. Many cities are not choosing this financing option because it can be cumbersome. Cities also find it difficult, on occasion, to legally prove the level of benefit associated with the assessment.

C. **Recommended Local Financing**

1. The cost of existing system retrofitting and maintenance projects should be borne by the Storm Sewer Utility fund as this is the primary focus of these funds.
2. The cost of new improvements in undeveloped land should be borne by the developer.
3. The cost of retrofitting the downstream system to accommodate new developments should be borne by newly established New Development Charges or Trunk Fees.
4. Increasing the general levy for storm sewer related costs is not recommended.
5. Creating a storm sewer assessment district is not recommended.

VIII. IMPLEMENTATION OF PRIORITIES AND PROGRAM

A. Special Waters

According to the MPCA's Special Waters list (January 2004), special waters in the Ramsey area include:

1. The **Mississippi River** is considered Scenic/Recreational from State Aid Highway 7 bridge in St. Cloud to the NW Anoka city limits.
2. The **Rum River** is considered Scenic/Recreational from Highway 27 bridge in Onamia to Madison and Rice Streets in Anoka.

The City will meet State requirements for development near these waters as identified in the Minnesota Stormwater Manual by designing storm water basins using the sizing criteria described in *Design Calculations for Wet Detention Ponds*, by William Walker Jr. The City will also encourage storm water practices that promote infiltration/filtration and decrease impervious areas (better site design and integrated stormwater management), where practical.

B. City-wide SWPPP and MS4 Permit

The City-wide SWPPP, associated with its MS4 permit, is available on the City's website. ~~The MPCA is in the process of reviewing the City's SWPPP. Any changes requested by the MPCA will be incorporated into the final SWMP. The timeline for implementing each BMP is detailed on the BMP sheets of the SWPPP.~~ The SWPP was updated to reflect the 2013 re-issuance of the MS4 Permit. A copy of the SWPPP is attached in Appendix B.

C. Implementation Schedule

In accordance with Minnesota Rule 8410.0010, the City of Ramsey must provide for the adoption of necessary regulatory controls, storm water design standards, education programs, data collection programs, and maintenance programs. This SWMP must clearly distinguish the City's responsibilities versus the responsibilities of the LRRWMO and Anoka County with respect to implementing each program element.

According to Minnesota Rule 8410, each organization plan must include a schedule for implementation by the organization, joint powers agreement members, and affected local units of government. All plan controls and programs to be implemented by the organization must be in effect within one year of plan adoption. All local plan controls and programs must be developed and in effect within two years of adoption of the last organization plan in the local unit of government.

Since this SWMP is an update to a previously accepted plan, most of the required programs have already been developed and coordinated with Anoka County and the LRRWMO. ~~However, the City of Ramsey fully intends to implement the ordinance revisions recommended in this plan within one year of plan acceptance by all regulatory agencies having jurisdiction and the City Council.~~

D. Capital Improvement Program

This SWMP must include a capital improvement program that identifies specific capital improvements necessary to implement the water resource management goals and policies of the organization. The 5-year Capital Improvement Program is discussed in Section VII of this report.

A Capital Improvement Program, or CIP, already exists and is updated on annually for a projected 5-year period. The CIP includes projects to implement the recommendations in this SWMP.

E. **Enforcement**

This SWMP must identify the procedure to be followed to enforce violations of the controls of the organization as well as those of the local unit of government.

The City uses a permitting process with a bond requirement for new developments. If the developer fails to follow the conditions of the permit, the City can contact the bonding company requesting immediate rectification.

The City has adopted the following ordinances:

1. Erosion and Sediment Control Ordinance
2. Illicit Discharge Ordinance
3. Post Construction Storm Water Management Ordinance.

~~The City is will adopt the following ordinances as part of its NPDES Phase II Stormwater Permit:~~

~~1. An erosion and sediment control ordinance (already adopted).~~

~~2. An illicit discharge ordinance.~~

~~3. A post construction storm water management ordinance.~~

Each of these ordinances ~~will be (is)~~is enforceable locally and will carry fines for failure to adhere to them. In addition, the MPCA can impose significant fines for pollution discharges associated with these ordinance controls as well as any unauthorized pollution discharge.

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F. **Administration Process**

This SWMP must specify the administrative process and timelines for the submittal, review, and approval of local plans and variances by the organization.

Requirement 1: All communities need to include information on the types of best management practices to be used to improve storm water quality and quantity and the maintenance schedule for the best management practices (BMPs).

Solution 1: *The City's SWPPP, available on the City website, includes the mandatory list of BMPs together with an implementation timeline. All of the BMPs in the SWPPP and designed to improve storm water quality. The City's current development ordinances are designed to regulate storm water quantity in accordance with the LRRWMO requirements. Within a year after the acceptance of this plan, the City will review its ordinances controlling development to include the recommendations of this SWMP, chiefly the recommended runoff volume controls.*

Requirement 2: All communities need to include a Wetland Management Plan or a process and timeline to prepare a plan. The Wetland Management Plan should incorporate a function and value assessment for wetlands.

Pretreatment of storm water prior to discharge is required for discharge into all wetland types. Buffers should be consistent with the functions and values identified in the plan. The use of native vegetation as buffers for high quality wetland will be required.

Solution 2: *The City has completed a MNRAM evaluation of all of wetlands within city limits and greater than ¼ acre in size. A summary wetland management Plan is attached in Appendix C. The MNRAM evaluations will be included in the City GIS network and documented along with a natural resources inventory that is currently being developed.*

Requirement 3: The City needs to include funding sources for the various required activities.

Solution 3: *The required funding sources are described in detail in Section VII of this SWMP.*

Requirement 4: The City needs to include activities to be undertaken along with numerical goals, strategies and timelines.

Solution 4: *The City's SWPPP, available on the City website and attached in Appendix B, includes BMPs describing the necessary activities, numerical goals, strategies and timelines.*

Table 18 is an implementation process list of the recommended actions, timing, responsible party, and the cost or funding sources which are presented for the City Council's consideration based upon the data compiled in this report. Actions are listed in order of priority, from highest to lowest.

Table 18
Implementation Process List

Action	Timing	Responsible Party	Cost/Funding Source
Maintain and implement Capital Improvement Program.	On-going, updated on a 5-year period.	City of Ramsey	Storm water area charge and monthly storm water utility fee
A storm water maintenance program enforced to ensure the successful operation of the drainage system.	On-going.	City of Ramsey	Storm water area charge and monthly storm water utility fee
Corrective actions for storm water problem areas.	On-going, as problems come up.	City of Ramsey	Storm water area charge and monthly storm water utility fee
The erosion and sedimentation control criteria for new developments enforced.	On-going, as developments are submitted to the City for approval.	City of Ramsey	Funding by developer's fees and building permits
Low impact development/better site design for new developments encouraged.	On-going, as developments are submitted to the City for approval.	Developer's Engineers, City of Ramsey	City staff funding by developer's fees and building permits. Developers pay for design and construction of developments.
Conceptual regional Ponding areas established as described herein and made a part of the storm water management system.	On-going, as Developments are submitted to the City for approval. Right of first refusal purchasing at time of sale of property.	City of Ramsey	Cost sharing with Anoka County
Standard review procedures established to ensure all development within the City is in compliance with proper erosion control practices.	Currently in place. Update as necessary.	City of Ramsey	Funding by developer's fees and building permits
Detailed hydrologic analysis required during final design of all ponding areas.	Currently in place. Update as necessary.	Developer's Engineers, City of Ramsey	Developers pay for design and construction of developments. City staff funding by developer's fees and building permits.

Final high water levels governing building floor elevations adjacent to ponding areas and floodplains established as development occurs or when drainage facilities are constructed.	On-going.	Developer's Engineers, City of Ramsey	Developers pay for design and construction of developments. City staff funding by developer's fees and building permits.
Overflow routes established and maintained to provide relief during extreme storm conditions, which exceed design conditions.	On-going, as developments are submitted to the City for approval.	City of Ramsey	Developers pay for design and construction of overflow routes. City-conducted maintenance funded by developer's fees and building permits.
An education program for City residents, staff, and development community implemented.	On-going.	City of Ramsey	City of Ramsey, with help from LRR WMO, DNR, University of Minnesota Extension Service, SWCD, NRCS
Amendments to the SWMP adopted and implemented and the SWMP updated.	As warranted by future standards or regulations – by 2015 or earlier if needed.	City of Ramsey	Storm water area charge and monthly storm water utility fee
Regulate construction and land uses along the bluff, to prevent erosion.	On-going, as developments are submitted to the City for approval.	City of Ramsey	Funding by developer's fees and building permits
Encourage landowners to retain any areas of native vegetation, and to plant species native to the area, to protect and improve wildlife habitat and maintain the historic ecological role and appearance of the steeper riverbanks. The existing housing developments along steeper riverbanks have addressed retention of native vegetation in one of two ways: platting of the property in an outlot and deeding that to the City or	On-going, as developments are submitted to the City for approval.	Land Owners, Developers, City of Ramsey	Landowner, City of Ramsey, Future grant opportunities if they arise

through a conservation easement.			
Develop an implementation strategy for TMDLs.	Once TMDLs are formulated.	City of Ramsey, working with LRRWMO	LRRWMO, BWSR, DNR, etc.

IX. AMENDMENT PROCEDURES

This Updated SWMP extends to ~~2015~~2022. Amendments to the plan may be adopted and implemented as warranted by future standards or regulations. The City is aware that the Lower Rum River Watershed Management Organization is currently updating its watershed management plan which will trigger the mandatory re-evaluation and potential need for an update of this SWMP within two years from the date the watershed plan is approved by BWSR. The City will initiate any amendments by resolution of the City Council. The citizens of Ramsey, City Staff, the City Council, or any of the review authorities having jurisdiction may submit amendment requests.

The amendment request will be evaluated by City staff and a recommendation will be made to the City Council. If the Council deems the amendment necessary, it will order City staff and/or the City attorney to draft an amendment.

The draft amendment will be brought to the Council for review. If approved, the Council will pass a resolution calling for a hearing on the amendment. The amendment must be forwarded to each organization affected by the amendment. The proposed amendment will be published in the official city newspaper not less than 10 days before the hearing.

The hearing will be held in a public place, typically in the Council chambers at City hall. At the hearing, all interested citizens will be given the opportunity to submit a written statement or voice their opinion on the acceptability of the proposed amendment.

When all have been heard, the City Council will close the hearing and vote their decision on whether to pass a resolution accepting the amendment as written.

According to State Statute 103B.235, Subd. 5, Amendments, to the extent and in the manner required by the LRRWMO, all major amendments to the SWMP shall be submitted to the LRRWMO for review and approval in accordance with the provisions of State Statute 103B.235, subdivisions 3 and 3a for the review of plans. All major plan updates and amendments will be submitted to the Lower Rum River Watershed Management Organization and the Metropolitan Council simultaneously. All minor amendments will be reviewed and approved by the City Council.

X. SUMMARY AND RECOMMENDATIONS

A. Summary

The Ramsey SWMP has a dual purpose: it will serve as a guide for the construction of storm drainage facilities and provide a basis for a consistent approach to the preservation of lakes, wetlands, streams, and the Mississippi and Rum Rivers. The following issues have been incorporated into this plan:

1. Division of the City into major watersheds based on contour maps, grading plans and natural topography
2. Determination of storm water runoff under ultimate land use conditions
3. General layout and sizing of trunk storm sewers and open channels
4. Tributary areas, storage volumes, and high water levels of all existing ponding areas
5. Recommendations for the revision of the current development ordinances
6. Recommendations for standard Operations and Maintenance procedures
7. Recommendations for specific construction site erosion control practices
8. Estimated construction and implementation costs of the SWMP
9. Recommendations for education of City residents, staff, and development community.

The primary function of an urban storm drainage system is to minimize economic loss and inconvenience due to periodic flooding of streets and other low-lying areas. Adequately designed storm drainage facilities provide flood control, minimize hazards and inconvenience associated with flooding, and protect or enhance water quality. The SWMP takes the entire drainage basin with future saturation development into consideration.

Wet water quality ponds upstream or dry regional infiltration basins (where possible) will help control the rate and the volume of storm water runoff. To provide flood protection for adjacent property, the design storm interval for ponding areas with a known outfall is a 100-year storm as compared to a 10-year storm for design of storm sewer piping. For land locked ponds or wetlands, the design storm interval is a back-to-back 100-year storm or the 100-year, 10-day snow melt event, whichever is larger. Any new residential, commercial, industrial and other habitable structures shall be constructed with the following low floor elevation: Elevation of the lowest floor of a structure shall be a minimum of 1 foot above the Emergency Overflow, or 2 feet above the HWL of the nearby pond or waterbody, whichever is higher.

In areas adjacent to designated flood plains as mapped on a Flood Insurance Rate Map, the Regulatory Flood Protection Elevation (RFE) applies. The RFE is defined as the mapped 100-year flood elevation plus 1 foot. However, the LRRWMO requires that the lowest floor elevation be 2 feet above the calculated flood elevation. Therefore, all structures, including accessory structures, must be elevated on fill so that the lowest floor including basement floor is at or above the Regulatory Flood Protection Elevation or 2 foot above the mapped 100-year flood elevation. The finished fill elevation for structures shall be no lower than the Regulatory Flood Protection Elevation and the fill shall extend

at such elevation at least fifteen (15) feet beyond the outside limits of the structure erected thereon.

The area of a pond's HWL plus 1 foot of freeboard shall be contained entirely within an outlot that is owned and maintained by the City.

The numerous natural depressions found throughout Ramsey have been incorporated into the SWMP as ponding areas. Wetlands may be, and are currently being used for stormwater storage for larger rainfall events. They may continue to be used for this purpose – even after upstream development, provided that:

1. There is acceptable Best Management Practice pretreatment of the runoff in accordance with the MPCA NPDES/SDS Construction Permit, Section III.D~~C~~., Permanent Stormwater Management System.
2. The bounce from the normal water level to the high water level does not exceed two feet.

The effective use of ponding areas enables the installation of outflow sewers with reduced capacities since the design storm duration is effectively increased over the total time required to fill and empty the ponding reservoirs. Storm sewers represent a sizable investment for the community and this investment can be more efficiently utilized by ponding storm water in designated ponding areas and allowing smaller diameter pipes to be used as outfall lines.

Equally as important as flood control and cost considerations, is the use of ponding areas to:

1. Improve water quality;
2. Return storm water to the groundwater table;
3. Increase water amenities in developments for aesthetic, recreational and wildlife purposes.

For water quality ponds, the storage below the outlet is the most important consideration. The area and depth of the ponds may differ from the values presented here, storage below the outlet must be provided so that the prescribed pollutant loading of the system is not exceeded.

Amenity aspects are maximized by careful planning in the initial development of any residential or industrial area and by integrating the ponding system into an overall comprehensive SWMP.

The wildlife aspects of the ponding areas shall be maximized in design and the proper location of the trail system will allow good access to these areas for wildlife observation.

B. **Model Results**

Odd numbered Figures from Figure 11 through Figure 23 are maps of critical SSA pond data superimposed on the most recent aerial photo of Ramsey. They are color coded to highlight whether the 100-year storm conditions as follows:

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Green – The pond functions properly and the peak elevation is fully contained within the pond

Yellow – The peak pond elevation is above the emergency overflow spillway

Red – The peak pond elevation may threaten structures

All red and yellow areas have been "ground truthed" to verify the condition depicted. These maps can be used to evaluate regional pond opportunities. In reviewing these maps, one can easily see where the current ponds or depressions are overtaxed for the 100-year event.

The following is a brief discussion of the opportunities and recommendations associated with each watershed:

Figures 11 & 12 – D43 Watershed

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This is the Ditch 43 watershed. From Figure 11, it can be seen that this area is fully developed around a significant amount of existing wetlands. This leaves little opportunity to construct regional ponds.

The red areas on Figure 11 indicate ponds that are subject to flooding during the 100-year event. The yellow areas indicate that the emergency overflow is reached during a 100-year event. These ponds should be reviewed relative to the following:

- Should the outfall pipe be replaced with a larger one?
- Can the pond be enlarged?
- Can the overflow spillway be lowered?
- Can rain gardens be incorporated into the upstream watershed?
- Is the upstream watershed larger than allowed by the original design?
- Can some of the upstream watershed be diverted?

The two ponds in the southwestern part of the watershed that are highlighted in red, P26308 and P26310, appear to be infiltration ponds with no outlet pipe. Because our model conservatively assumes no infiltration, the threat of flooding from these ponds may be exaggerated. In comparing this area with the historic flooding map of Figure 9, there have been no reports of flooding in this area.

Pond P25454 appears to need a raised emergency overflow to the west in order to relieve potential flooding. Our model suggests that a 12-inch outfall culvert under Sunwood Drive with an inlet elevation of 866 will eliminate this threat from a 100-yr rainfall event.

Since the D43 watershed is comprised of a significant amount of wetland which acts as satisfactory runoff storage, no other significant designs are necessary with the exception of the localized flooding associated with the red highlighted ponds. Otherwise, upstream watershed review for infiltration/rain garden opportunities is recommended.

Figures 13 & 14 – D66 Watershed

This is the Ditch 66 watershed. It is nearly identical in nature to the D43 Watershed in build out and wetland storage. Hence, the recommendation is the same: review the highlighted ponds and determine if they need upgrading through either upstream infiltration practices, pond enlargement or increasing the outfall.

From Figure 13, only one pond, P22110 is a potential threat to structures. In reviewing Figure 9, no residential complaints have been made for this area and City Staff has not highlighted this area as a nuisance flooding area. It currently exists as a small natural depression that may have infiltration capacity. Our modeling conservatively assumes that

no infiltration occurs and that relief is only provided by storage and the capacity of the outfall pipe. Hence, the potential threat to structures may be exaggerated. If this pond proves to be a problem, the pond storage could be increased or the existing 15" outfall could be increased to a 21" pipe with a lower pipe inlet elevation of 883 to adequately relieve the potential flooding.

The yellow coded ponds in Figure 13 highlight ponds that are immediately adjacent to large wetlands. With the exception of pond P09308, in the northwest part of the watershed, these ponds have emergency overflows directly to these wetlands and there is no concern for public welfare or property damage associated with these ponds. Pond P09308 is another infiltration basin with no historic complaints in the vicinity. Because our model conservatively assumes no infiltration, any threat of flooding from this pond may be exaggerated.

Figures 15 & 16 – EMISS Watershed

This is the Eastern Mississippi watershed. The majority of the northern part of this watershed is adequate in storage and functioning properly. Where there is undeveloped land, the SSA model can be used to recommend appropriate pipe sizing and ponding to ensure that it remains free of flooding.

The southern part is more commercialized and also more prone to flooding. However, there are no historic complaints of flooding in the area (see Figure 9).

If additional flood protection is needed in the southern EMISS watershed, there are some opportunities to correct the ponds that are modeled to be surcharged. From the aerial photograph, it appears that there are a few opportunities for expanding troubled ponds and the creation of additional ponding that may be constructed as backflow basins to relieve the flood prone ponds in the area. Those best opportunities are immediately adjacent to the railroad. These would be best incorporated into future development of this area. Otherwise, retrofitting rain gardens, infiltration basins, and as a last resort, increasing outfall pipes may be considered for nuisance ponds.

Figures 17 & 18 – GOLF Watershed

This watershed is currently functioning well. There is only one pond, P11320, in the watershed that is a potential threat to structures. It appears to be a roadside ditch infiltration basin pond. Again, conservatively ignoring infiltration may exaggerate the flooding potential of this pond. There is no history of complaints of flooding in this area. If flooding becomes a problem, it may only need minor grading to correct its emergency overflow spillway. Also, upstream watershed review for infiltration/rain garden opportunities may also suffice in correcting the problem.

The remaining yellow ponds appear to be in undeveloped areas and are probably natural depressions that fill and overflow.

For the few upstream areas that are not developed, careful retention, infiltration and outfall design review using the SSA model is the best way to accommodate continued development.

Figures 19 & 20 – MMISS Watershed

This watershed is only partially developed. The existing development is on the downstream end. The ponding areas within the developed part of the watershed are working well. As recommended earlier, infiltration and rain gardens should be

incorporated into the upstream development where possible. The recommended ordinance changes should help ensure that this occurs.

Figures 21 & 22 – TROTT Watershed

This watershed is unique in that the majority of the area is currently designed as low impact development. The general nature of the Trott Brook watershed is that it is a linear wetland. The majority of the ponds are functioning well. City staff has noted that one area, near 179th Avenue and Azurite Street is a problem area (Figure 9). This area is also highlighted as a potential threat to structures in Figure 21. Regrading the roadside ditches or constructing a new outfall to relieve this area is recommended to alleviate the problem flooding in this area.

The remaining red highlighted pond and the only yellow highlighted pond in TROTT Watershed are infiltration areas with no historic complaints of flooding in the vicinity. Because our model conservatively assumes no infiltration, any threat of flooding from this pond may be exaggerated. If infiltration is not resolving the problem, the emergency overflow from this area should be regraded to protect the structures in the area.

Figures 23 & 24 – WMISS Watershed

This watershed includes the RTC area which will function well when the south storm sewer outfall is constructed. However, some ponds are indicated as being a threat. To ensure that this does not become a problem, we recommend using the SSA model to correct these potential problems as future expansion of the RTC area occurs. The residential area to the northwest has several ponds that should be reviewed with the same considerations as the Trott and Ditch 43 watersheds.

Pond number P17306, located immediately west of 156th and Nutria, shows as a potential threat to structures and as an area of property owner complaints. This appears to be a land locked infiltration pond that has very little infiltration capacity. The best solution to this pond is to provide an outfall to the west.

Pond P21210-E, immediately south of 151st Avenue and east of Rhinestone Street, is also shown as flooded. This is also an isolated infiltration with no outlet. The property owners in the vicinity of this pond have filed complaints of nuisance flooding in this area. Solutions for this pond include:

- Expanding the storage and working the pond invert to encourage infiltration
- Regrading to lower the existing emergency overflow channel
- Constructing a new piped outfall to serve the area.

There are two infiltration basins in the mid-eastern part of the watershed (Section 21 near 162nd Avenue and Zirconium Street that have been modeled to be either using the emergency spillway or a potential threat to structures. Although the peak elevation of these ponds may be exaggerated by neglecting infiltration in our model, nuisance flooding has been reported in the vicinity by area residents as shown in Figure 9. To alleviate this problem in Pond P21208, we recommend constructing an outlet culvert outlet under 161st Avenue may adequately address the problem flooding experienced there. The problem in Pond P21210, which is upstream from the residential nuisance flooding area, may be corrected by either expanding the infiltration basin storage or by regrading the emergency overflow spillway at a lower elevation to alleviate the potential flooding threat.

We recommend that the undeveloped part of the WMISS watershed, lying immediately west of the RTC, treated in a similar fashion as the RTC. If a separate outfall can be created for this area, it could work in an almost identical fashion. If a separate outfall cannot be obtained, a large regional pond network is recommended. If the ponding alternative is taken, the regional pond network would need to store 100 percent of the runoff at a safe level prior to outletting into the RTC system. This would ensure that the RTC is not threatened by continued development upstream.

Finally, the Highway 10 corridor is appears to have some pond overflow problems that are only associated with using the ditches as storage. We believe that the best financial and hydrological solution to alleviate these problem areas is to coordinate with MnDOT on any future TH 10 improvements. Any improvements to TH 10 are likely to involve new corridor stormwater management and funding.

General

Figures 30 through 34 are typical SSA output files for a single pipe/pond corridor. These are intended to illustrate the output potential of the model and software. If similar output files were created for every aspect of the entire system, this report would be too cumbersome. This is an example of what has been prepared for GIS access. Your staff can manipulate the data to get similar output for virtually any pipe, pond or ditch within Ramsey.

It is extremely important that each area be re-evaluated at the time of final design to confirm the criteria used in this study and to make any changes that a proposed development may dictate. Special consideration must be given to areas that develop differently than shown in the Comprehensive SWMP, especially when a higher runoff coefficient is likely to result from development.

All storm sewer facilities, especially those conveying large quantities of water at high velocities, should be designed with efficient hydraulic characteristics. Special attention should be given during final design to those lines that have extreme slopes and create high hydraulic heads.

The Best Management Practices (BMPs) recommended by the MPCA should be followed wherever necessary.

C. **Recommendations**

The following recommendations are presented for the City Council's consideration based upon the data compiled in this report:

1. The SWMP as presented herein should be adopted by the City of Ramsey.
2. The recommended corrections for flood prone areas should be made as described herein and made a part of the storm water management system, where feasible.
3. Standard review procedures should be established, where feasible, to ensure all development within the City is in compliance with proper erosion control practices.
4. Detailed hydrologic analysis should be required, where feasible, during final design of all new developments and ponding areas.

5. Final high water levels governing building elevations adjacent to ponding areas and floodplains should be established as development occurs or when drainage facilities are constructed.
6. Overflow routes should be established and maintained, where feasible, to provide relief during extreme storm conditions, which exceed design conditions.
7. An emergency overflow should be constructed for Lake Itasca to relieve the extreme fluctuation in lake levels of this isolated lake.
8. A storm water maintenance program should be enforced, where feasible, to ensure the successful operation of the drainage system.
9. The erosion and sedimentation control criteria for new developments should be enforced, where feasible.
10. An education program for City residents, staff, and development community should be implemented, where feasible.
11. Amendments to the plan should be adopted and implemented as warranted by future standards or regulations, where feasible.
12. That the plan should be updated in the year 2015 or earlier if needed and feasible.

The existing storm sewer system of the City of Ramsey is not adequate to handle the continued development around the presently developed area. If development continues, the existing system will need major improvement and enlargements to effectively serve the community without excessive flooding. The proposed infiltration and oversized ponding development scenario together with strategically located regional ponds presents one method of accommodating the present growth of Ramsey. However, this report and the proposed scenario is not necessarily the only method of accomplishing the goal of comprehensive storm water management.

Given this, it is imperative that this plan and the SSA model of the City is continually updated on a regular basis and compared to the baseline runoff of the existing conditions model to ensure that any adjustments in area developments continue to be coordinated. In addition, the proposed storm water development charges should be updated annually to ensure that the associated City costs are fully financed. In this manner, the plan can maintain its usefulness as a current document.

Finally, the EPA has initiated the NPDES Phase II requirements whereby cities with populations in excess of 10,000 people are required to apply for a Phase II permit. Some additional cities that are actually under 10,000 in population are also included. The City of Ramsey is a mandatory small MS4 community. One of the requirements of the NPDES permitting process is the existence of a storm water management plan.

As stated earlier, this report is predominantly based on information obtained from available topographic data, field verification of the watershed areas, "ground truthing" of modeled flood prone areas, and discussions with City staff relative to the historical flooding areas. Since the modeled existing system closely matches that described by observation, we feel that this plan has significant benefit as a planning and design tool. However, the quality and accuracy of this report could be further validated with more detailed survey data in the growth areas around the City.

~~We request that City staff and interested parties carefully review the accompanying information. With projects of this magnitude and the amount of data analyzed and~~

~~developed, there will undoubtedly be some oversights, typographic errors, calculation errors, etc. Our final review and quality control process is on-going and, prior to final publication of maps and computer files, additional quality control reviews will be completed.~~

~~We wish to thank the City of Ramsey and City staff for their support in this project. We look forward to meeting with the Council and other interested citizens to answer any questions regarding the project and the recommended improvements.~~

XI. ACRONYMS AND GLOSSARY

A. Acronyms

BMP - Best Management Practices
BWSR - Minnesota Board of Water and Soil Resources
DNR - Minnesota Department of Natural Resources
EOF - Emergency Overflow
EPA - United States Environmental Protection Agency
EPB - Environmental Policy Board
EQB - Minnesota Environmental Quality Board
FEMA - Federal Emergency Management Agency
FIRM - Flood Insurance Rate Map
GIS - Geographic Information System
GPS - Geographic Positioning System
HWL - High Water Level, typically associated with the 100 year rainfall event
IDF - **I**ntensity-Duration-Frequency (for precipitation)
LID - Low Impact Development
LRRWMO - Lower Rum River Watershed Management Organization
LUST - Leaking Underground Storage Tank
MnDOT - Minnesota Department of Transportation
MnRAM - Minnesota Routine Assessment Method
MPCA - Minnesota Pollution Control Agency
MS4 - Municipal Separate Storm Sewer System
MSWMP - Metropolitan Surface Water Management Program
MUSA - Metropolitan Urban Services Area
NOI - Notice of Intent (for coverage under the NPDES Permit Program)
NPDES - National Pollutant Discharge Elimination System
NPDES/SDS - The General Permit Authorization to Discharge Storm Water Associated with Construction Activity under the National Pollutant Discharge Elimination System/State Disposal System Permit Program. Administered by the MPCA
NURP - Nationwide Urban Runoff Program
NWL - Normal Water Level or Low Outlet Elevation
SWCD - Soil and Water Conservation District
SWMP - Surface Water Management Plan
SWPPP - Storm Water Pollution Prevention Program
TP - Total Phosphorus
TEP - Technical Evaluation Panel, typically needed for WCA approval of wetland impacts
TSS - Total Suspended Solids
USEPA - United States Environmental Protection Agency
UST - Underground Storage Tank
WCA - The Minnesota Wetland Conservation Act and its subsequent Minnesota Rules 6115 and 8420.
WD - Watershed District
WMO - Watershed Management Organization

B. **Glossary**

100-Year Flood: The flood reaching water levels or flow rates with a one-percent (1%) chance of occurring in any given year. On the average, a 100-year flood is statistically probable to occur only once in a 100-year period. A 100-year flood is synonymous with Base Flood, Regional or 1% Chance Flood.

100-Year Storm Event: The rainfall event having a total precipitation over a 24-hour period with a one-percent (1%) chance of occurring in any given year. On the average, a 100-year storm event is statistically probable to occur only once in a 100-year period. ~~The value for the Ramsey area is taken from Soil Conservation Service Technical Paper No. 40 (SCS TP-40). For the Ramsey Area, a 100-year Storm Event is a 5.9-inch rainfall in 24 hours.~~NOAA Atlas 14: Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffrey Bonnin (2013). NOAA Atlas 14, Volume 8, Version 2, *Precipitation-Frequency Atlas of the United States, Midwestern States*. NOAA, National Weather Service, Silver Spring, MD.

100-Year, 10-Day Snowmelt Event: The storm event having a total precipitation over a 10-day period with a one-percent (1%) chance of occurring in any given year. On the average, a 100-year snowmelt event is statistically probable to occur only once in a 100-year period. The value for the Ramsey area is taken from the SCS National Engineering Handbook, which shows the 100-year, 10-day snowmelt event is 7.3 inches over 10 days.

Agricultural Land: Any land designated specifically for agricultural production. This may include row crops, pasture, hay land, orchards, or land used for horticultural purposes.

Anaerobic: Conditions either in water or soil where there is a lack of oxygen.

Army Corps of Engineers (COE or USCOE): The United States Army Corps of Engineers is a regulatory agency involved in design, permitting and construction projects related to or impacting navigable waters of the United States including lakes, waterways and wetlands.

Aquatic Bench: A 10- to 15-foot bench around the inside perimeter of a permanent pool that ranges from zero depth at the shore to 1-foot depth no less than 10-feet from the shore. Normally vegetated with emergent plants, the bench augments pollutant removal, provides habitat, conceals trash and water level drops, and enhances safety.

Best Management Practice (BMP): An action, procedure, or structural improvement designed to improve water quality. BMPs include schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the State. BMPs also include treatment practices such as ponds, rain gardens, vegetated buffers and vegetated swales, treatment requirements, operating procedures, and practices to control runoff, spillage or leaks, or drainage from raw material storage.

Buffer: A vegetated area immediately adjacent to a wetland that is not mowed and/or managed. Buffers are ideally dominated by native vegetation and add to the ecological

health of the wetland by adding habitat and assisting and filtering pollutants from surface water runoff.

Buffer Strip: An area of vegetated ground cover abutting a water body that is intended to remove sediment and other pollutants from runoff.

BWSR: Board of Water and Soil Resources. This is the lead regulatory agency that oversees Minnesota Statue 103B.205 to 103B.255, Minnesota Rule 8410 and the Minnesota Wetland Conservation Act.

Circular 39: A wetland classification system developed by United States Fish and Wildlife Service in 1956 that categorizes wetlands into eight types. This is the same classification system generally accepted by the State of Minnesota for wetland classification.

Comprehensive Plan: As defined in Minnesota Statutes 394.21, a Comprehensive Plan defines a City's the policies, statements, goals and interrelated plans for private and public land and water use, transportation and community facilities to assist in guiding future development and growth.

Cowardin Classification: A wetland classification system developed by the United States Fish and Wildlife Service in 1979. This system defines wetlands by a tiered system and is more detailed than the Circular 39 method. The Cowardin System is the classification System used in the National Wetlands Inventory.

Design Storm: A rainfall event of specified size and return frequency that is used to calculate the runoff volume and peak discharge rate to a BMP. In Ramsey, a 10-year design storm is 4.1-inches in 24-hours and a 100-year storm is 5.9-inches in 24-hours. If designing piped storm sewer, a 10-year design storm may also refer to an IDF curve used in the Rational Method of storm sewer design.

Detention: The temporary storage of runoff from rainfall and snowmelt events to control peak discharge rates and provide an opportunity for treatment to occur. Detention storage is typically designed in basins.

Development: The construction, installation or alteration of any structure, the extraction, clearing or other alteration of terrestrial or aquatic vegetation, land or the course, current or cross section of any water body or water course or division of land into two (2) or more parcels. See also re-development, new development and existing development.

Drawdown: The gradual reduction in water level typically due to the combined effect of infiltration and evaporation, but may be the result of human interference.

Draining: The removal of surface water or ground water.

Drop Structure: Placement of logs with a weir notch across a stream channel. Water flowing through the weir creates a plunge pool downstream of the structure and creates fish habitat.

Easement: A grant of one or more property rights by a property owner for use by the public, a corporation, or another person or entity.

Emergency Overflow (EOF): A hydraulic channel, swale, weir, etc. that provides an outlet from a pond or flooded area at an elevation below the point where property damage can occur.

End of Pipe Control: Water quality control technologies suited for the control of existing urban storm water at the point of storm sewer discharge to a receiving water. Due to typical space constraints, these technologies are usually designed to provide water **quality control rather than quantity control.**

Erosion: The wearing away of land surface and soil by the action of natural elements (wind and/or water).

Eutrophication: Process by which overabundance of nutrients in a waterbody lead to accelerated productivity and general decrease in water clarity and quality.

Exfiltration: The downward movement of runoff through the surface and into the subsoil.

Existing Development: A property or parcel of land that has previously been subject to development and no major changes are anticipated to the property in the near future.

Exotic Species or Invasive Species: Non-native plants or wild animals that can naturalize, have high propagation potential, are highly competitive for limiting factors, and cause displacement of, or otherwise threaten, native plants or native animals in their natural communities.

Extended Detention: A storm water design feature that provides for the gradual release of a volume of water (typically 0.25 to 1.0 inches per impervious acre) over a 12 to 48 hour time period. With proper design, the extended detention period allows for an increased settling of pollutants, and can protect channels from frequent flooding or scour.

Extended Detention (ED) Ponds: A conventional ED pond temporarily detains a portion of storm water runoff for a period of 12 to 48 hours after a storm using a fixed orifice. Such extended detention allows urban pollutants to settle out. ED ponds can be designed to be "dry" between storm events and thus do not have any permanent standing water or "wet" with a permanent pool of water. An enhanced ED pond is designed to prevent clogging and resuspension and provides greater flexibility in achieving target detention times. It may be equipped with plunge pools near the inlet, a micropool at the outlet, and utilize an adjustable reverse-sloped pipe at the ED control device. See also "wet pond" definition for diagram.

Extended Detention Wetland: A storm water wetland design alternative in which the total treatment volume is equally split between a shallow marsh and temporary detention of runoff above the marsh. After a storm, the normal pool of the shallow marsh may rise

by up to two feet. The extra runoff is stored for up to 24 hours to allow pollutants to settle before being released downstream.

Finished Floor Elevation: The lowest elevation of the first floor or basement in a residential building or other structure that will or may be inhabited by a person or persons.

Filtration Basin: A treatment area designed to treat storm water by a process that physically removes particles from the water.

Flood: A temporary rise in stream flow or stage that results in inundation of the areas adjacent to the channel or water body.

Flood Frequency: The statistically determined average time period between events where a specific flood stage or discharge may be equaled or exceeded.

Flood Fringe: That portion of the 100-year floodplain outside of the floodway.

Flood Obstruction: Any dam, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel rectification, culvert, building, wire, fence, stockpile, refuse, fill, structure or matter in, along, across or projecting into any channel, watercourse or regulatory flood hazard area that may impede, retard or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water that may cause the flood level to rise and damage property or threaten life.

Floodplain: Floodplains are lowland areas adjoining lakes, wetlands, and rivers that are susceptible to inundation of water during a flood. For regulatory purposes, the floodplain is the area covered by the 100-year flood and it is usually divided into districts called the floodway and flood fringe. Areas where floodway and flood fringe have not been determined are called approximate study areas or general floodplain.

Floodplain (General) Area: The general floodplain area is determined using the best available data, in lieu of performing a detailed engineering study. These data may be from soils mapping, experienced high water profiles, aerial photographs of previous floods, or other appropriate sources. There are no associated published 100-year flood elevations with general floodplain delineations, unlike detailed study areas. General floodplain area is synonymous with approximate study area and unnumbered A-Zone.

Flood Proofing: A combination of structural provisions, changes or adjustments to properties and structures subject to flooding primarily for the reduction or elimination of flood damages to properties, water and sanitary facilities, structures and contents of buildings in a flood hazard area in accordance with the Minnesota State Building Code.

Floodway: The floodway is the channel of a river or other watercourse and the adjacent land areas which must remain open in order to discharge the 100-year flood.

Forebay: An extra storage area provided near an inlet of a pond or BMP to trap incoming sediments, reducing the amount that accumulates in a pond or BMP.

Freeboard: A factor of safety usually expressed in feet above a certain flood level. Freeboard compensates for the many unknown factors (e.g., waves, ice, debris, etc.) that may increase flood levels beyond the calculated level.

Forbs: Vegetation that does not consist of trees, grass or shrubs. Forbs are typically associated with flowering plants

Geographic Information System (GIS): Computer databases of georeferenced information on the cities various resources.

Global Positioning System (GPS): Network of satellites used to map and identify locations on the earth.

Hydric Soil: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part. Hydric soil is one of the three criteria that define wetlands

Hydrophytic Vegetation: Macrophytic plant life growing in water, soil, or a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Hypereutropic: A very nutrient-rich lake characterized by frequent and severe nuisance algae blooms and low transparency.

Intensity-Duration-Frequency (IDF) Curve: A graphical representation of the rainfall intensity versus time of concentration for an area. The IDF curve is typically used in the Rational Method of storm sewer design to determine design rainfall intensity in inches per hour. The following IDF curve is taken from the Minnesota Department of Transportation Drainage Manual and applies is used in the rational method of storm sewer design for the Ramsey Area.

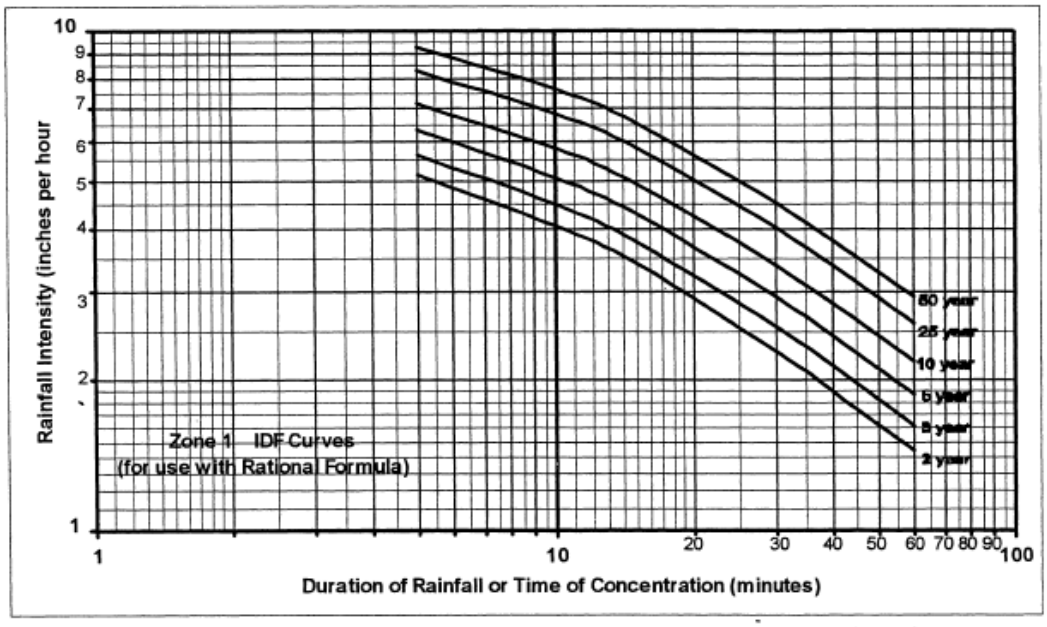


Figure 3.4 Zone 1 Southern Minnesota Rainfall Intensity - Duration - Frequency (IDF) Curves

Impervious Surface: The portion of the buildable parcel which has a covering which does not permit water to percolate into the natural soil. Impervious surface shall include, but not be limited to, buildings, all driveways and parking areas (whether paved or not), sidewalks, patios, swimming pools, tennis and basketball courts, covered decks, porches, and other structures. Open, uncovered decks are not considered impervious for the purposes of this ordinance. The use of patio blocks, paver bricks or class 5 gravel material are considered impervious surfaces as a majority of water runs-off the surface rather than being absorbed into natural soils underneath. Some exceptions to these conditions may include paver blocks or pavement systems engineered to be permeable with the underlying soils suitable for infiltration.

Infiltration Basin: An impoundment where incoming storm water runoff is stored until it gradually infiltrates into and through the soil of the basin floor.

Infiltration Trench: A conventional infiltration trench is a shallow, excavated trench that has been backfilled with stone to create an underground reservoir. Storm water runoff diverted into the trench gradually exfiltrates from the bottom of the trench into the subsoil and eventually into the water table. An enhanced infiltration trench has an extensive pretreatment system to remove sediment and oil. It requires an on-site geotechnical investigation to determine appropriate design and location.

Infrastructure: Public facilities and services, including transportation, storm water pipes, structures and ponds, water and sewer pipes and structures, telecommunications, recycling and solid waste disposal, parks and other public spaces, schools, police and fire protection, and health and welfare services.

Integrated Management Practice (IMP): A range of small-scale storm water controls or practices distributed throughout a site and intended to maintain flow patterns, filter pollutants and/or re-create or maintain existing site hydrology.

Invasive Species or Exotic Species: Non-native plants or wild animals that can naturalize, have high propagation potential, are highly competitive for limiting factors, and cause displacement of, or otherwise threaten, native plants or native animals in their natural communities.

Landlocked High Water Level or Landlocked HWL: The peak water level or high water level in a land locked basin. The HWL is the highest peak ponding elevation generated by the back-to-back 100-year SCS 24-hour rainfall events, the 10-inch SCS 24-hour rainfall event or the 100-year, 10-day snowmelt snow melt event.

Local Government Unit (LGU): Agency that has the primary responsibility of administering the Wetland Conservation Act. The City of Ramsey acts as LGU for all wetlands within the City limits and shares responsibility for basins that border adjacent municipalities.

Lowest Floor: The lowest floor of a structure, including basement.

Low Impact Development (LID): An approach to storm water management intended to protect water resources, reduce storm sewer infrastructure costs and provide a more attractive storm water management system. LID practices include infiltration systems, bioretention areas, rain barrels, green roofs, porous pavements and a long list of additional innovative storm water treatment practices.

Mesotrophic: Describes a lake of moderate photosynthetic productivity.

MNRAM: The Minnesota Routine Assessment Methodology as referenced by Minnesota Rules 8420. MNRAM is the primary tool used to assess wetland functions and values on a qualitative basis. MNRAM evaluates wetlands based on vegetation, wildlife habitat, water quality, flood and storm water attenuation, recreational opportunities, aesthetics, fishery habitat, groundwater interactions, and commercial use. The result of a MNRAM evaluation is a ranking of the wetland quality that can be used to monitor the wetland changes over time and to set appropriate protection needs and techniques. The version referenced in this plan is Version 3.0.

Monotypic: Used to describe vegetation communities in which only one dominant species is present. Most often used to describe areas that are entirely dominated by reed canary grass or cattails.

Navigable Waters: Waters defined by the United States, 33 Code of Federal Regulations Section 329.4 as those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. The U.S. Army Corps of Engineers has Federal Jurisdiction over Navigable Waters.

New Development: Development of a property or portion thereof that is currently undeveloped property.

NURP: Nationwide Urban Runoff Program, a study by the U.S. Environmental Protection Agency. A key component of this program was to assess the effectiveness of urban runoff detention/retention basins (e.g., ponds) in removing pollutants from storm water runoff.

Off-Line BMP: A water quality facility designed to treat a portion of storm water (usually 0.5 to 1.0 inches per impervious acre) which has been diverted from a stream or storm drain.

Off-Line Treatment: A BMP system that is located outside of the stream channel or drainage path. A flow diverter is used to divert runoff from the channel and into the BMP for subsequent treatment.

Ordinary High Water Level (OHWL or OHW): The Minnesota DNR jurisdictional boundary of public waters and wetlands that is depicted by an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel. For reservoirs and flowage, the ordinary high water level is the operating elevation of the normal summer pool. In Ramsey all of the lakes have an OHW established. For streams and waterways, the OHW is considered the top of bank. Areas below the OHW are under the jurisdiction of the Minnesota Department of Natural Resources and are not regulated by the Wetland Conservation Act.

Permanent Pool: A 3- to 10-foot deep pool in a storm water pond system that provides removal of urban pollutants through settling and biological uptake (also referred to as a wet pond).

Porous Pavement: An alternative to conventional pavement whereby runoff is diverted through a porous asphalt or concrete layer and into an underground stone reservoir. The stored runoff then gradually infiltrates into the subsoil.

Protected Water: Any water or wetland designated by the Minnesota Department of Natural Resources and identified by statute on the Protected Waters Inventory.

Public Waters: Those waters of the state identified as public waters or wetlands under Minnesota Statutes, Section 103G.005.

Rational Method: A method of estimating the peak runoff from a watershed that is based on the formula Q = CIA. Where:

Q = peak flow rate in cubic feet per second
C = a runoff coefficient based on the percentage of impervious surface, type of vegetative cover, and soil type
I = rainfall intensity in inches per hour as determined from an area IDF curve
A = watershed area in acres

Reach: A hydraulic engineering term to describe a longitudinal segment of a stream or river influenced by the natural or man-made obstruction. In an urban area, the segment of a stream or river between two consecutive bridge crossings or between two reservoirs would most typically constitute a reach.

Redevelopment: Any development including but not limited to rebuilding, renovation, revision, remodeling, reconstruction or redesign of or at an existing development.

Regional Flood: A flood which is representative of large floods known to have occurred generally in Minnesota and reasonably characteristics of what can be expected to occur on an average frequency in the magnitude of the 100-year recurrence interval. A regional flood is synonymous with the term "base flood" used in the Flood Insurance Study.

Regulatory Flood Protection Elevation: A point not less than one-foot above the water surface profile associated with the 100-year flood as determined by the use of the 100-year flood profile and surrounding technical data in the Flood Insurance Study plus any increase in flood heights attributable to encroachments on the floodplain. It is the minimum elevation the DNR requires Cities to regulate by ordinance.

Retention: The permanent storage of runoff from rainfall and snowmelt events with volume reduction coming from infiltration, evaporation or emergency release.

Riprap: A combination of large stone, cobbles and boulders used as an erosion control BMP. Riprap is typically used to line channels, stabilize banks, reduce runoff velocities, or filter out sediment.

Runoff (Storm Water): The overland and near surface flow from rainfall and snowmelt.

Runoff Coefficient: A measure of the rate of runoff that isstatistically generated from a parcel of land that is based on the land use, percent of impervious surfacing, soil type and vegetative cover. The higher the coefficient, the higher the amount of runoff anticipated from the parcel. Rational method runoff coefficients range from 0.2 for meadow lands to 0.95 for paved surfaces.

Runoff Conveyance: Methods for safely conveying runoff to a BMP to minimize disruption of the stream network, and promote infiltration or filtering of the runoff.

Runoff Pretreatment: Techniques to capture or trap coarse sediments before they enter a BMP to preserve storage volumes or prevent clogging within the BMP. Examples include forebays and micropools for pond BMPs, and plunge pools, grass filter strips and filter fabric for infiltration BMPs.

Sand Filter: A technique for treating storm water, whereby the first flush of runoff is diverted into a self-contained bed of sand. The runoff is then strained through the sand, collected in underground pipes and returned back to the stream or channel.

Sediment Forebay: A storm water design feature that employs the use of a small settling basin to settle out incoming sediments before they are delivered to a storm water BMP. Often used full in tandem with infiltration devices, wet ponds or marshes.

Sequencing: The process used by the Local Government Unit to evaluate the necessity of an activity relative to its impact on a wetland. The party proposing the impact must demonstrate that the activity proposed complies with the following principles in descending order of priority.

1. Avoids direct or indirect impacts to the wetlands that may diminish or destroy them;
2. Minimizes the impact to the wetland by limiting the degree or magnitude of the wetland activity and its implementation;
3. Rectifies the impacts by repairing, rehabilitating, or restoring the affected wetland;
4. Reduces or eliminates the impact to the wetland over time by preservation and maintenance operations; and,
5. Replaces unavoidable wetland impacts to the wetland by restoring or, if wetland restoration opportunities are not reasonably available, creating substitute wetland areas having equal or greater public value as provided for under the Wetland Conservation Act.

Shoreland: Land located within the following distances from public waters:

1. One thousand feet from the ordinary high water level of a lake, pond, or flowage
2. Three hundred feet from a river or stream, or the landward extent of a floodplain designated by ordinance on a river or stream, whichever is greater.

The limits of shoreland may be reduced whenever the waters involved are bounded by topographic divides which extend landward from the waters for lesser distances and when approved by the Commissioner of the DNR.

Short Circuiting: The passage of runoff through a BMP in less than the theoretical or design treatment time. For example, a properly designed treatment pond will have the inlet and outlet pipes located as far apart (along the water flow path) as possible. A short circuiting pond would have the inlet very close to the outlet and the water coming into the pond would leave the pond much sooner than if it were able to travel through the entire pond.

Storm Water Treatment: The use of accepted BMPs to treat runoff including **d**etention, retention, filtering or infiltration of a given volume of storm water to remove pollutants.

Stream Buffer: A variable width strip of vegetated land adjacent to a stream that is preserved from a disturbance and/or mowing to protect water quality and aquatic and terrestrial habitats. See also buffer strip.

Structure: Anything manufactured, built, constructed, erected, or a portion thereof which is normally attached to or positioned on land, whether temporary or permanent in character, including but not limited to buildings, fences, sheds, advertising signs, dog kennels, hard surface parking areas, boardwalks, playground equipment, concrete slabs.

Shoreland Wetland Protection Zone: The land located within 1,000 feet from the Ordinary High Water Elevation of a Protected Water, 500 feet from the Mississippi or Rum Rivers or the landward extent of the designated floodplain, and 300 feet from any stream designated in the shoreline management ordinance.

Storm Water: (See Runoff)

Storm Water Treatment Pond: Any waterbody that has been specifically created to remove sediment and nutrients and "treat" surface water runoff. Storm water ponds that were created from existing wetland are still regulated as jurisdictional wetlands. Storm water ponds created from upland areas are not wetland and are exempt from regulatory jurisdiction.

Subwatershed: A subdivision based on hydrology corresponding to a smaller drainage area within a larger watershed.

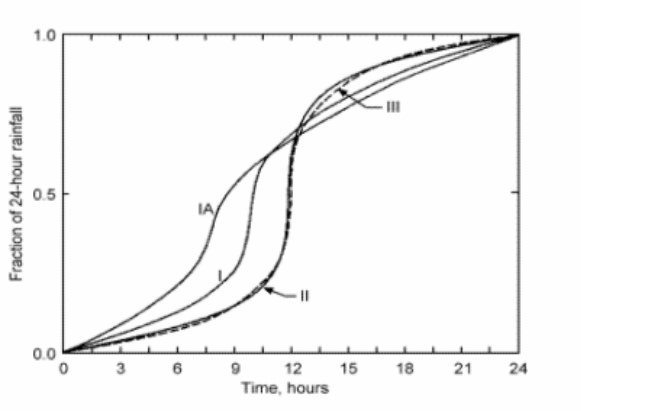
Technical Evaluation Panel (TEP): A panel of technical professionals from the Board of Water and Soil resources, the Anoka County SWCD, the LRRWMO and the LGU (City of Ramsey) at a minimum. This panel may also be expanded to include a Minnesota Department of Natural Resources representative, the U.S. Army Corps of Engineers and interested citizens requesting to participate in the wetland decision making process. Invitations to a TEP meeting are typically sent to all parties listed. The DNR, COE and interested citizens (if any) may elect not to attend. The TEP provides decision making support for the LGU for many wetland and regulatory issues.

Ten-Day Snow Melt Runoff with Type "C" Distribution (100-Year/10-day snow melt runoff): A modeled runoff event that represents snowmelt conditions over a 10-day period for a return period snow depth of 100 years. The runoff event is simulated for a curve number (CN) of 100 which represents frozen soil conditions or where all surfaces are considered impervious. For some Ramsey the ten-day runoff event is critical event for identifying the high water level of the basin or water body because the Anoka Sand Plain typically reduces runoff under unfrozen conditions. The Type C distribution is similar in concept to the Type I and II distributions, and for this event, establishes the time distribution of runoff volume over the ten-day period.

Treatment Volume (Vt): The volume of storm water runoff that is treated within a BMP or IMP storm water treatment facility. Typically the volume is expressed in terms of inches of runoff per impervious acre.

Type I, IA, II and III Storm Distributions - NRCS: These storm types represent the time distribution of a 24-hour rainfall event for areas throughout the United States. The total storm depth is distributed according to the diagram in subpart A. Type II storms are more "flashy" (i.e., convective/thunderstorms) than a Type I or IA storm. Subpart B illustrates that all of Minnesota is within the Type II rainfall distribution area.

A. SCS 24-hour rainfall distributions (SCS, 1986):



B. Approximate geographic boundaries for SCS rainfall distributions (SCS, 1986):

Underdrain: Typically perforated plastic pipes installed on the bottom of a filtration of infiltration BMP, or sand filter. The under drain is used to collect and remove treated storm water that exceeds the water holding and/or infiltration capacity of the soil.

Upland: General term to describe any area that is not a wetland.

Vegetated Filter Strip: A vegetated section of land designed to accept runoff as overland sheet flow from upstream development. It may adopt any natural vegetated form, from grassy meadow to small forest. The dense vegetative cover facilitates pollutant removal. Vegetated filter strips cannot treat high velocity flows; therefore, they have generally been recommended for use in agriculture and low-density development. A filter strip can also be an enhanced natural buffer, whereby the removal capability of the natural buffer is improved through engineering and maintenance activities such as land grading or the installation of a level spreader. A filter strip differs from a grassed

swale in that a swale is a concave vegetated conveyance system, whereas a filter strip has a fairly level surface.

Watershed: A topographically defined area within which all runoff water drains to a point.

Water Quality Volume: A design volume of water as defined by the MPCA that is required to be treated from a new development site. The MPCA defines the water quality volume as 0.5-inches of runoff from all new impervious surfaces associated with the development in the watershed.

Watershed-to-Lake Ratio: The relative surface area of the contributing watershed to the surface area of the lake or water body. In terms of water quality, generally the smaller the watershed-to-lake ratio, the better the quality of the lake. For example a lake with a ratio of 4 to 1 means that the watershed is four times the size of the lake (i.e., 200 acres contributing to a 50 acre lake).

Wetland: Transitional land between terrestrial and aquatic systems where the water table is at or near the surface or the land is covered by shallow water. The jurisdictionally accepted definition of a wetland includes the following three characteristics:

1. Have a predominance of hydric soil
2. Be inundated or saturated within 1-foot of the surface for at least 5 percent of the growing season. The inundation refers to a single continuous episode.
3. Support a prevalence of hydrophytic vegetation typically adapted for life in saturated soils.

Wetland Conservation Act (WCA): In 1991 Minnesota adopted the initial Wetland Conservation Act (Minnesota Laws Chapter 354) to protect the states wetland resources. This act has been amended and updated periodically, typically under Minnesota Rule 8420, and is used by reference to the current program, as well as any future amendments.

Wetland Delineation: The process and procedure by which an area is determined a wetland or non-wetland including a determination of the wetland boundary based on the point where the non-wetland areas shift to wetlands or aquatic habitats.

Wetland Mitigation: Wetlands created to replace wetland areas destroyed or impacted by land disturbances.

Wet Pond: A conventional wet pond has a permanent pool of water for treating incoming storm water runoff and a live storage component for flood storage and additional water quality treatment detention.

Tables

Figures

~~Appendix A~~

~~Ordinances~~

9.13 Soils

9.13.01 Purposes and Findings

Subdivision 1. The City determines that in areas not served by sanitary sewer, the effluent from septic tanks shall be disposed of by soil absorption in properly constructed and effectively operating absorption systems.

Subd. 2. The City determines that protection of the public health, safety and general welfare, including the protection of natural resources from impairment, pollution, and destruction, with which it is charged by Minnesota Statute 1973, §116B.01, are advanced by permitting soil absorption systems only where soil permeability, surface slope, freedom from flooding and distance from groundwater ensure reasonable absorption without pollution of waters, such lands hereinafter being described as Class I lands.

Subd. 3. The City finds that lands within it have unfavorable characteristics for soil absorption systems; such lands hereinafter being described as Class II, III, IV and V lands.

Subd. 4. The City adopts the standard requirement that sufficient area of Class I land be available within each lot or parcel for the construction of an adequately sized soil absorption system and the reconstruction or duplication of the soil absorption or final disposal unit of that system. In no case shall the area of contiguous Class I land available on each lot be less than as follows:

a. 2000 Urban Area 50% of lot area
b. Transitional Area 25% of lot area
c. Rural Area 25% of lot area

All areas shall be exclusive of public rights of way, including publicly dedicated easements. All required areas of contiguous Class I land availability may include that portion of the lot or parcel used for building construction and all such areas may include building set back requirements, except that there must be adequate area for septic tank construction in the 2000 Urban Development Area and adequate area for septic tank construction in the 2000 Urban Development Area and adequate area for septic tank construction and reconstruction in the Transitional and Rural Development Areas.

Subd. 5. The City adopts the Anoka County Soil Survey, 1977 (Soil Survey) and supplemental operational soil surveys as its official soil survey and makes it a part of this City Code, a copy of which is on file with the Administrator. The soil survey is a guide to establishing land classifications as defined herein. Land areas mapped and described in the soil survey as being acceptable for soil absorption systems does not constitute an implied or express warranty that such land is in fact usable for this purpose.

9.13.02 Definitions

Class I Lands – are lands on which the water table remains greater than six (6) feet below the surface through the year, and:

a. The soil is moderately permeable with slopes not exceeding 12%.

b. The soil is rapidly permeable with slopes not exceeding 18%.

Class II Lands – are lands on which the water table remains at two (2) to six (6) feet below the ground surface throughout the year, and:

a. Soils are moderately permeable with slopes ranging between 12% and 18%.

b. Soils are slowly permeable with slopes not exceeding 12%.

Class III Lands – are lands on which the water table remains greater than six (6) feet below the surface throughout the year, and

a. Soils are moderately permeable and slopes exceed 18%;

b. Soils are rapidly permeable and slopes exceed 18%;

c. Soils are slowly permeable and slopes exceed 12%.

Class IV Lands – are lands on which the water table does not remain greater than six (6) feet below the surface throughout the year or lands considered to be floodplain and subject to flooding.

Class V Lands – are lands which have steep slopes, over 12%.

Floodplain – is lands adjacent to rivers, lakes, creeks, drainage ways, marshes and other lowland areas which are subject to inundation by runoff from the 100 year regional storm or the 100 year snow snow melt runoff event.

Sewage Disposal Chapter – is a chapter of the City known as "A Chapter Providing for the Construction and Maintenance Of Sewage Disposal Systems" and any subsequent amendments to that chapter.

Soil Absorption System – is a system constructed in conformance to the City Sewage Disposal Chapter for the purpose of the disposal of septic tank effluent by soil absorption.

Soil Permeability – is the quality of the soil that permits water or air to pass through it; it is expressed as the time in minutes required to pass one (1) inch of water through a saturated cross-section of soil; it is determined by field test procedures outlined in the City Sewage Disposal Chapter.

Soil Permeability – Moderately – are soils having percolation rates of thirty (30) minutes per inch to 60 minutes per inch.

Soil Permeability – Rapidly – are soils having percolation of less than thirty (30) minutes per inch.

Soil Permeability – Slowly – are soils having percolation rates in excess of sixty (60) minutes per inch.

Soil Survey – is the systemized study of soils, including the study of morphological soil characteristics, soil behavior and the classification of soils into defined types and other classification units, soil mapping to show the boundaries of soils and their geographic distribution and the prediction of their behavior for specific uses or management systems as defined by Standard Soil Survey, USDA.

Water Table – is the uppermost part of the soil that is wholly saturated with water.

9.13.03 Land Classes

Subdivision 1. Class I Lands. The following soil types as described and mapped in the Anoka County Soil Survey, 1977 may be found to meet the criteria of Class I land.

Rapidly Permeable Soils

Numerical Symbol	Letter Symbol	Name
159	Ana	Anoka loamy fine sand
159 B	AnB	Anoka loamy fine sand
27T	DnA	Dickman sandy loam
27T B	DnB	Dickman sandy loam
7T, 42	HuA	Hubbard coarse sand
7T B	HuB	Hubbard coarse sand
T C	HuC	Hubbard coarse sand
207, 188	NyA	Nymore loamy sand
207 B	NyB	Nymore loamy sand
207 C	NyC	Nymore loamy sand
8 B	SbB	Sartell fine sand
8 C	SbC	Sartell fine sand
8 C 2	SbC2	Sartell fine sand
158	ZmA	Zimmerman fine sand
158 B	ZmB	Zimmerman fine sand
158 C	ZmC	Zimmerman fine sand

Moderately Permeable Soils

Numerical Symbol	Letter Symbol	Name

69-B	BtB	Braham loamy fine sand
169-C	BtC	Braham loamy fine sand
133-A, B	D1A	Dalbo silt loam
132-B	HdB	Hayden fine sandy loam
132-C	HdC	Hayden fine sandy loam
232-B,73	HeB	Heyder fine sandy loam
232-C	HeC	Heyder fine sandy loam
152-B	KmB	Kingsley fine sandy loam
152-C	KmC	Kingsley fine sandy loam

Subdivision 2. Class II Lands. The following soil types as described and mapped in the Anoka County Soil Survey, 1977 may be found to meet the criteria of Class II land.

Numerical Symbol	Letter Symbol	Name
170	Bm	Blomford loamy fine sand
7W	Dp	Duelm Coarse Sand
162	Ln	Lino Loamy fine sand
202	Me	Meehan sand
225	Ne	Nessel fine sandy loam
224	No	Nowen sandy loam

Subd. 3. Class III Lands. The following soil types as described and mapped in the Anoka County Soil Survey, 1977 may be found to meet the criteria of Class III land.

Numerical Symbol	Letter Symbol	Name
124,124	Wx	rickton silt loam
84, 544	Cb	Cathro muck
183	Is	Isan sandy loam
161	Iw	Isanti fine sandy loam
161H	Kr	Kratka loamy fine sand
75, 14	Lw	Loamy wet land
83, 543	Ma	Markey muck
81, 541	Rf	Rifle mucky peat
540	Se	Seelyeville muck

Subd. 4. Class IV Lands. The following soil types as described and mapped in the Anoka County Soil Survey, 1977 may be found to meet the criteria of Class IV land.

Numerical Symbol	Letter Symbol	Name
20, 20e	Af	Alluvial land, frequently flooded
25, 95	Ba	Beckery very fine sandy loam
85, 185	Lb	Lake beaches
53	Mc	Marsh

Subd. 5. Class V Lands. The following soil types as described and mapped in the Anoka County Soil Survey, 1977 may be found to meet the criteria of Class V land.

Numerical Symbol	Letter Symbol	Name
132-D	HdD	Hayden fine sandy loam
232-D	HeD	Heyder fine sandy loam

152 D	KmD	Kingsley fine sandy loam
152 E	KmE	Kingsley fine sandy loam
207 D	NyD	Nymore loamy coarse sand
8 D 2	SbD2	Sartell fine sand, eroded
158 D	ZmD	Zimmerman fine sand

9.13.04 Determination of Land Classification. The Anoka County Soil Survey, 1977, and supplemental operational soil surveys may be used as a guide to the determination of land classification. The actual classification of land shall be verified by topographic surveys to verify slopes, percolation tests as described in the City Sewage Disposal Chapter to verify percolation rates and soil borings to verify adequate depths to groundwater.

9.13.05 Location of and Provisions for Soil Absorption Systems

Subdivision 1. New Subdivisions

a. Sufficient area of Class I land shall be reserved within each newly created lot or parcel of less than ten (10) acres for the construction of an adequately sized soil absorption system and the reconstruction of soil absorption or final disposal unit of that system. The area of Class 1 land required shall be determined on the basis of system design requirements of the City Sewage Disposal Chapter, the percolation rate of soils determined to be Class 1, and the estimated daily volume of sewage based on proposed site development. In no instance shall the reserved area of Class I land be less than as required in §9.13.01 subd. 4. The reserved area of Class I land shall be wholly within the lot or parcel for which it is reserved and shall be so located as to be outside of all areas in which soil absorption systems are not allowed due to setback requirements from future structures, wells, water lines, trees and property lines as set forth in the City Zoning Chapter. No subdivision of land shall be approved unless each lot or parcel created by said subdivision for building purposes meets the requirements for the reservation of Class I land.

b. The subdivision of land into parcels or lots shall not be approved where sufficient areas of Class I land cannot be reserved unless adequate methods are provided for overcoming the deficiency of adequate area for soil absorption.

Subd. 2. Administration. In conjunction with their respective duties in administrating the City's Subdivision Chapter, Zoning Chapter and other related land use and planning chapters, the City's Zoning Administrator, Planning Commission and Council shall insure that this Chapter is complied with.

Subd. 3. Lots of Record. This Chapter is intended to apply to all parcels of land within the City, regardless of whether a parcel was of record before or after the time of enactment of this Chapter.

Subd. 4. Variances. Variances from the strict enforcement of this Chapter may be granted in accordance with the procedures and requirements of the Variance Section of the Zoning Chapter of this Code, which is specifically §9.03.05.

Historical Note

Established by Ord. #73-05, May 21, 1973.

Ord. #79-3 amended §9.13.01 Subd. 4, adding "All required area of contiguous class I land availability may include that portion of the lot or parcel used for building construction and all such areas may include building set-back requirements, except that there must be adequate area for septic tank construction in the 1990 urban development area and adequate area for septic tank construction and re-construction in the transitional and rural development areas. Established §9.13.05 Subd. 13 entitled "Lots of Record" and §9.13.05 Subd. 4 entitled "Variances." Passed Feb. 12, 1979.

9.21 Environmental Protection

9.21.01 Findings and Purpose

Subdivision 1. Statutory Authorization. This City Code is adopted pursuant to the authorization contained in the Laws of Minnesota 1973, Chapter 379, and in furtherance of the policies declared in Minnesota Statutes 1976, Chapters 104, 105, 115, 116 and 462.

Subd. 2. The uncontrolled use of shorelands of the City affects the public health, safety and general welfare not only by contributing to pollution of public waters, but also by impairing the local tax base. Therefore, it is in the best interest of the public health, safety and welfare to provide for the wise development of shorelands of public waters. The Legislature of Minnesota has delegated responsibility to the municipalities of the state to regulate the subdivision, use and development of the shorelands of public waters and thus preserve and enhance the quality of surface waters, preserve the economic and natural environ- mental values of shorelands, and provide for the wise utilization of waters and related land resources. This responsibility is hereby recognized by the City.

The Council of the City finds that the Mississippi River Corridor within the City is a unique and valuable local, state, regional and national resource. The river is an essential element in the local, regional, state and national transportation, sewer and water and recreational systems and serves important biological and ecological functions. The prevention and mitigation of irreversible damage to this resource and the preservation and enhancement of its natural, aesthetic, cultural and historic values is in furtherance of the health, safety and general welfare of the City.

The Council further finds that the Critical Area District is characterized by certain soil types, slopes and water levels which are unsuitable for development. The preservation of trees and woodlands, marshes, swamps, wetlands, drainage ways and water courses within the Critical Area District serves important ecological, recreational and aesthetic functions to the benefit of existing and future residences of the City and, therefore, is in furtherance of the health, safety and general welfare of the City.

In addition to the Shorelands and Critical Area District, the Council of the City finds that the wetlands are a valuable local, state, regional and national resource. The wetlands provide recreation and serve as drainage areas, important biological and ecological functions.

It is the purpose and intent of this Section to prevent and mitigate irreversible damage to these natural resources and to preserve and enhance their values to the public. Development shall be so regulated so as to minimize the risk of environmental damage to these areas. By doing so, private homeowners and governmental units are protected from incurring high maintenance and capital costs resulting from the necessity to correct the deficiencies encountered as a result of inappropriate or improper development.

9.21.02 Establishment of District Boundaries. This Section shall apply to all public and private lands within the following described districts of which the Critical Area and the Shorelands shown on the official environmental overlay map. This overlay map is hereby adopted as a part of this City Code.

Subdivision 1. The Critical Area Overlay District. The Mississippi River Corridor Critical Area as set forth and legally described in Minnesota State Executive Order No. 7919 as recorded in the State Register, Monday, March 12, 1979. This district hereinafter is called Critical River Area and shall be identified on the official environmental overlay map referenced in this Section.

Subd. 2. Wetlands. The Minnesota Department of Natural Resources (DNR) uses the U. S. Fish and Wildlife classification system for wetlands and currently requires a permit for alteration of wetland types 3-5 which are 2.5 acres or larger.

Wetland types 1, 2 and 6 and wetlands as small as one acre are recognized as having importance as storm sewer ponding basins, but the DNR does not presently require permits for alteration of these areas.

In Ramsey, there is an abundance of wetlands, some found along the edges of the streams and rivers and the others in upland depressional areas. The wetlands are not concentrated in one area, but rather scattered throughout the community. All Type 3, 4 and 5 wetlands of 2.5 acres or more as referenced in §9.21.02 have been mapped by the DNR and Anoka County and shall be identified on the official environmental map referenced in §9.21.02. A copy of the Public Waters/Wetlands map as prepared by Anoka County is on file at the City offices and is hereby adopted as part of this City Code. This City Code shall apply to an impact area within 50 feet of all Type 3, 4, and 5 Wetlands and types 1, 2, and 6 Wetlands one acre in size or larger.

Subd. 3. Shoreland Overlay District. In order to guide the wise development and utilization of shorelands of protected waters for the preservation of water quality, natural characteristics, economic values and the general health, safety and welfare, certain protected waters in the City have been given a shoreland management classification.

These protected waters of the City have been classified by the Commissioner of Natural Resources as follows:

	Natural Environment Lakes	**DNR I.D. #**
1.	Shack Eddy	2-109
2.	Itasca	2-110

3.	Rogers	2-104

	Recreational Development Lakes	DNR I.D. #
1.	Jeglens Marsh	2-111
2.	Peltzer Pond	2-112
3.	Grass (Sunfish)	2-113

	General Development Lakes	DNR I.D. #
1.	Ramsey Terrace Pond	2-114
2.	Magnesium Street Pond	2-116
3.	Industry Avenue Pond South	2-117
4.	Industry Avenue Pond North	2-118

	General Development Streams	Locations
1.	Trott Brook	Sections 1, 2, 3, 7, 8. 9. T32N, R25W
2.	Ford Brook	Sections 1 & 2 T32N, R25W

The above shorelands of the City are hereby designated as a Shoreland Overlay District. The purpose of the Shoreland Overlay District is to provide for the wise utilization of shoreland areas in order to preserve the quality and natural character of these protected waters of the City. Boundaries of the shoreland overlay district shall be determined by scaling distances off the official environmental overlay map.

9.21.03 Definitions. For the purpose of this Section, certain terms or words used herein shall be interpreted as follows: The word "shall" is mandatory, not permissive. All distances unless otherwise specified shall be measured horizontally.

Bluffline – The line which generally follows the river bank where the slope changes from steep (more than 12 percent) to less than 12 percent).

Boathouse – A structure used solely for the storage of boats or boating equipment.

Building Line – The line measured across the width of the lot at the point where the principal structure is placed in accordance with setback provisions.

Clear-cutting – The removal of an entire stand of trees.

Cluster Development – A development considered to be a type of Planned Unit Development and is subject to the same review criteria.

Conditional Use – A use of shorelands which is permitted within a zoning district only when allowed by the city after a public hearing, if certain conditions are met which eliminate or minimize the incompatibility of the conditional use with other permitted uses of the district.

Crown Cover – The ratio between the amount of land shaded by the vertical protection of the branches and foliage area of standing trees to the total area of land, usually expressed as percentage.

~~**Development** – The construction, installation or alteration of any structure, the extraction, grading or filling, clearing or other alteration of terrestrial or aquatic vegetation, land or the course current or cross-section of any water body or water course or the division of land into two or more parcels.~~

~~**Dimensional Requirement** – Minimum and maximum setbacks, yard requirements and/or structure height or size restrictions established in Chapter 9.01 for the various zoning districts.~~

~~**Emergency Work** – Work that is necessary to save life or property.~~

~~**Governing Body** – The Council by whatever name known.~~

~~**Hardship** – A hardship means the property in question cannot be put to reasonable use under the conditions allowed by the official controls; the plight of the landowner is due to circumstances unique to their property, not created by the landowner; and then if granted, will not alter the essential character of the locality. Economic considerations alone shall not constitute a hardship if a reasonable use for the property exists under the terms of the official controls.~~

~~**Litter** – Slightly decomposed organic material on the floor of a wooded area.~~

~~**Lot** – A parcel of land designated by metes and bounds description, registered land survey, auditors plot, or other accepted means and separated from other parcels or portions by said description for the purpose of sale, lease, or separation thereof. For the purposes of these regulations, a lot shall be considered to be an individual building site which shall be occupied by no more than one principal structure equipped with sanitary facilities.~~

~~**Nonconforming Use** – Any use of land established before the effective date of this City Code which does not conform to the use restrictions of a particular zoning district. This should not be confused with substandard dimensions of a conforming use.~~

~~**Ordinary High Water Mark** – A mark delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape. The ordinary high water mark is commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial.~~

~~**Person** – Any individual, firm, corporation, partnership, association or other private or governmental entity.~~

~~**Planned Unit Development** – A type of development which may incorporate a variety of land uses planned and developed as a unit. The Planned Unit Development is distinguished from the traditional subdivision process of development in that zoning standards such as density, height limits, and minimum lot sizes may be altered by negotiation and agreement between the developer, the City and the Commissioner of Natural Resources.~~

~~**Protected Waters*** – Any waters of the State as defined in Minnesota Statutes 1980, §105.37, Subdivision 14. However, no lake, pond or flowage of less than ten acres in size and no river or stream having a total drainage area less than two square miles shall be regulated for the purposes of these regulations.~~

Setback – The minimal horizontal distance between a structure or sanitary facility and the ordinary high water mark or between a structure or sanitary facility and a road, well, highway, or property lines.

Shoreland – Land located within the following distances from protected waters:

a. 1,000 feet from the ordinary high water mark of a lake, pond, or flowage; and

b. 300 feet from a river or stream, or the landward extent of a flood plain on such rivers or streams, whichever is greater. The practical limits of shorelands may be less than the statutory limits where such limits are designated by natural drainage divides at lesser distances, as shown on the official zoning map of the City.

Sign, Advertising – A sign which directs attention to a business, commodity, service, activity or entertainment not necessarily conducted, sold or offered upon the premises where such sign is located.

Slope – The inclination of the natural surface of the land from the horizontal, usually measured in one of three ways: 1) as a ratio, the horizontal distance to the vertical distance; 2) as a percentage, the vertical distance over the horizontal distance; and 3) by degrees, measured from the horizontal to the vertical.

Structure – Any building (including mobile homes) or appurtenance thereto, except aerial or underground utility lines such as sewer, electric, telephone, telegraph or gas lines, including towers, poles, and other supporting appurtenances.

Public Waters* – has been changed to "Protected Water". All regulations and requirements remain the same, only the names have been changed.

Standard Use – Any use of shorelands existing prior to the date of enactment of this City Code which is permitted within the applicable zoning district but does not meet the minimum lot area and length or water frontage, structure setbacks, or other dimensional standards of the City Code.

Tree – Any woody plant that has at least one trunk whose diameter 4 feet above ground is 4" or greater.

Variance – Any modification or variation of official controls where it is determined that, because of hardships, strict enforcement of the official controls is impractical.

Wetland – Any low area permanently or seasonally covered with shallow water, including marsh, swamp, bog, wet meadow, slough or intermittent lake or floodway, except any area which is one acre or smaller in size.

Wetland Types

1. The soil is seasonally flooded, but during the growing season it is well drained. Vegetation is dependent on the duration of flooding. Due to the nature of Type I wetlands, the DNR did not identify any within the study area.

2. **Inland Fresh Meadows**. The soil usually is without standing water during most of the growing season, but is water logged within at least a few inches of its surface. Vegetation includes grasses, sedges, rushes and various broad-leaved plants.

3. **Inland Shallow Fresh Marshes**. The soil is usually water logged during the growing season; often it is covered with as much as 6 inches or more of water. Vegetation includes grasses, bulrushes, spikerushes and various other marsh plants such as cattails, arrow- heads and smart weed.

4. **Inland Deep Fresh Marsh**. The soil is covered with 3 to 6 feet or more of water during the growing season. Vegetation includes cattails reeds, bulrushes, spikerushes and wild rice.

5. **Inland Open Fresh Marsh**. Shallow ponds and reservoirs are included in this type. Water is usually less than 10 feet deep and is fringed by a border of emergent vegetation. Vegetation includes pond weeds, wild celery, coon tail, muskgrasses, water lilies and spatterdocks.

6. **Shrub Swamps**. The soil is usually water logged during the growing season and is often covered with as much as 6 inches of water. Vegetation includes alders, willows, dogwoods and swamp privet.

Woodland – A group of trees at least one half acre in area and with a crown cover of 50% or greater.

9.21.05 Environmental Permits and Standards

Subdivision 1. Environmental Permit. To insure that the policies in this Section are properly implemented, any person undertaking development to or on any land within the overlay districts shall, prior to commencing the work, obtain an environmental permit from the City. Except as hereinafter provided in this Section, no person shall perform any development in the overlay districts without first having obtained an environmental permit (hereinafter called permit) from the City. Exempted from this environmental permit requirement shall be all lots within a plat of record in the Anoka County Recorder's Office. Outlots contained within a plat shall not be exempted from this permit requirement.

Notwithstanding this permit exemption, development occurring on any lot, whether in a plat or not, must comply with and conform to the "Permit Standards" as outlined in the following section.

Subd. 2. Permit Standards. The following standards shall be met when any development is undertaken within the overlay districts.

a. No filling, grading, dredging, excavation or construction shall be allowed within any wetlands area; nor on lands abutting, adjoining or affecting said areas if such activity upon those adjacent areas is incompatible with City policies expressed here, in other documents and in the relevant storm water drainage study. Development is improper and therefore prohibited which may result in loss and damage to public and private

improvements through inundation by flood waters and subsequent expensive construction of storm sewers and other public projects, in the permanent destruction of natural resources, loss of water retention facilities, open space and wildlife habitats and impairment of public and private water supplies. Minimum area requirements for building sites shall be determined in accordance with Section 9.04 of the City Code, the standards of the Shoreland Overlay District and the Critical Rivers Area Overlay District.

b. A minimum amount of filling may be allowed when necessary, but in no case shall the following restrictions on total amount of filling be exceeded. Since the total amount of filling which can be permitted is limited, the City, when considering permit applications, shall consider the equal apportionment of fill opportunity to riparian land owners.

Total filling shall not cause the total natural flood storage capacity of the wetland to fall below the projected volume of runoff from the entire area wetland water shed generated by a ten year storm.

Total filling shall not cause the total natural nutrient stripping capacity of the wetland to fall below the nutrient production of the wetland watershed shed for its projected development.

Only fill, free of chemical pollutants and organic wastes, may be used. Wetlands shall not be used for solid waste disposal.

Grading and filling in overlay district areas or any alteration of the natural topography where the slope of the land is toward a protected water or a water course leading to a protected water must be authorized by a permit. The permit may be granted subject to the conditions that:

1. The smallest amount of bare ground is exposed for as short a time as feasible.

2. Temporary ground cover, such as mulch, is used and permanent ground cover, such as sod, is established.

3. Methods to prevent erosion and trap sediment are employed.

4. Fill is stabilized to accepted engineering standards.

c. The removal of natural vegetation shall be restricted to prevent erosion into protected waters, to consume nutrients in the soil, and to preserve aesthetics. Removal of natural vegetation in the overlay districts shall be subject to the following provisions.

1. Selective removal of natural vegetation is allowed, provided that sufficient vegetative cover remains to screen cars, dwellings and other structures when viewed from the water.

2. Clear cutting of natural vegetation is prohibited.

3. Natural vegetation shall be restored insofar as feasible after any construction project is completed to retard surface runoff and soil erosion.

4. The provisions of this Section shall not apply to permitted uses which normally require the removal of natural vegetation.

Development shall be conducted so that the maximum number of trees are preserved by the locating of structures in existing cleared areas and natural clearing and the utilization of other site design techniques.

Grading, contouring and paving shall be performed to minimize any detrimental affect on root zone aeration and stability of existing trees. Existing trees shall be provided with a watering area equal to at least one-half the crown cover.

When trees are removed, the permittee will restore the density of trees, utilizing nursery stocks of a minimum of 1 3/4" diameter measured one foot above the ground, using species generally accepted as suitable for the purpose to that which existed before the development provided that in no case need the density exceed 10 trees per acre.

Development shall not reduce the existing crown cover greater than 50% and shall be conducted in such a manner as to preserve the under story and litter.

Trees used in reforestation or landscaping must be compatible with the local landscape and climatic conditions.

d. No on site sewage disposal systems shall be allowed which do not meet the requirements of Section 9.13 of the City Code. This Section adopts the soils classification in the Soil Survey of Anoka County as prepared by the Soil Conservation Service.

e. No development shall be permitteed on land having a slope in excess of 18%. All very steep slopes (18 percent and over) shall be protected. No development of slope from 12 to 18 percent shall be permitted unless the applicant shall prove that the following conditions are met:

1. The foundation and underlying material of any material of any structure, including roads, shall be adequate for slope condition and soil type.

2. The applicant can demonstrate that development during and after construction can be accomplished without increasing erosion and runoff and that there is proper utilization of controls to reduce runoff to non-destructive levels.

3. The proposed development presents no danger of falling rock, mud, uprooted trees or other material to structures, recreational facilities, public lands and public waters down hill.

4. All structures other than buildings and roadway surfaces but including retaining walls shall meet the following design requirements:

(a) Retaining walls or terrace contours shall not exceed five feet in height;

(b) Construction shall be of natural stone, wood, or concrete;

(c) The use of gabbions non-wood pilings, metal retaining walls and pre-cast or cast in place concrete retaining walls is specifically prohibited; and

(d) The minimum width of terraces shall be 10 feet.

Subd. 3. Emergency and Exemptions. When emergency work is performed under this Section, the person performing it shall report the pertinent facts relating to the work to the City Engineer and Zoning Administrator prior to the commencement of work. The Zoning Administrator shall review the facts and determine whether an emergency exists and shall be written memorandum authorize the commencement of the emergency exception or deny the emergency exception, in which case no work may be commenced. A person commencing emergency work shall within 10 days following the commencement of that activity, apply for the issuance of an environmental permit and on the issuance thereof may be required to perform such work as is determined to be reasonably necessary to correct any impairment to the wetland occasioned by such emergency work.

The removal of trees, seriously damaged by storms or other acts of God, or diseased trees, shall not be prohibited.

Subd. 4. Permit Applications – Required Data. Environmental permits except where hereinafter noted, shall be issued by the Council after written findings from the Planning Commission and City Staff. A written application for an environmental permit must be submitted to the Zoning Administrator. Such applications shall include a site plan with adequate evidence to show that the proposed use will conform to the standards set forth in this Section. Five sets of clearly legible blue or black lined copies or drawings and required information shall be submitted to the Zoning Administrator and shall be accompanied by a receipt from the Administrator evidencing the payment of all required site plan fees. No permit or variance shall be issued unless the applicant in support of their application shall submit engineering data, surveys, site plans and other information as the City may require in order to determine the effects of such development on the affected lands and water areas. Such data, etc. shall be prepared by hydrologists, biologists, botanists or other technical persons as required by the Zoning Administrator.

Approval may be expressly given in conjunction with other permits applied for, but no approval shall be implied from the grant of such permits.

a. The site plans shall be prepared to a scale appropriate to the size of the project and suitable for the review to be performed which shall not be less than one inch equals 200 feet or more than one inch equals ten feet.

b. The following information shall be provided in the site plan:

1. The name and address of the landowner(s) and developer(s), the legal description and address of the property, north point, date and scale of drawing and number of sheets.

2. Location of the property including such information as the names and numbers of adjoining railroads, roads, existing subdivisions, building and other landmarks.

3. Existing topography as indicated on a contour map having contour intervals of one foot on a 0% to 3% slope, two feet on a 3% to 10% slope, and 5 feet on a 10% or greater slope; the topography map shall also clearly delineate any bluff line, all streams, including intermittent streams and swales, rivers, water bodies and wetlands located on the site, including depth of water, bottom slope, a description of body materials and all vegetation which may be found in the water body, a statement of water turbidity, a statement of water quality, and a classification given to the water body by the Minnesota Department of Natural Resources and the Minnesota PCA, if any. The topography map shall indicate the floodway and/or flood fringe lines and shall indicate the ordinary high water mark of the river.

4. A plan delineating existing drainage of the water setting forth in which direction the volume and at what rate storm water is conveyed from the site and setting forth those areas of the site where storm water collects and is gradually percolated into the ground or slowly released to a stream or lake. The quality of water runoff and water infiltrated to the water table or aquifer shall be as high after development as it was before development of the site. The quantity of runoff shall be limited to the discharge rates listed in the City's Comprehensive Storm Drainage Plan.

5. A description of the soils of the site, a map indicating soil types by areas to be disturbed, as well as a soil report prepared by a soil scientist containing information on the suitability of the soils for type of development proposed and for the type of sewage disposal and describing any remedial steps to be taken by the developer to render the soils suitable. All areas proposed for grading shall be identified by soil type, both as to soil type of existing top soil and soil type of the new contour. The location and extent of any erosion areas shall be indicated.

6. A description of the flora and fauna which occupy the site and are occasionally found thereon, setting forth with detail those areas where unique plant or animal species may be found on the site.

7. A description of any features, buildings or areas which are of historic significance.

8. A map indicating proposed finished grade showing contours are the same intervals as provided above or as required to clearly indicate the relationship of proposed changes to existing topography and remaining features.

9. A landscape plan drawn to an appropriate scale including dimensions and distances and the location types, size and description of all existing vegetation, clearly locating and describing any vegetation proposed for removal and all proposed landscape materials which will be added to the site as part of the development.

10. A proposed drainage plan of the developed site delineating in which direction, the volume and at what rate storm water will be conveyed from the site and setting forth the areas of the site where storm water will be allowed to collect and gradually percolate into the ground or be slowly released to stream or lake. The plan shall also set forth hydraulic capacity of all structures to be constructed or existing structures to be utilized including volume of holding ponds and the design year of the storm.

11. An erosion and sedimentation control plan indicating the type, location and necessary technical information on control measures to be taken both during and after construction, including a statement expressing the calculated anticipated gross soil loss expression in ton/acre/year both during and after construction. The gross soil loss shall not exceed 5 tons per acre per year during construction or 2 tons per acre per year during construction when the site is adjacent to a water body or water course; and 1/2 ton per acre per year after the construction activities are completed as calculated in accordance with the Uniform Soil Loss Equation.

    Wetlands and other natural water bodies shall not be used as primary sediment traps during or after construction.

12. A plan of erosion protection measures which shall make maximum use of natural in-place vegetation rather than the placing of new vegetation on site as erosion control facilities. the use of natural erosion control devices shall be preferred to the maximum extent over the construction of artificial drainage devices including culverts, holding ponds and ditches. the development shall be located in such a manner as to minimize the removal of vegetation and alteration of the natural topography.

13. The proposed size, alignment, height and intended use of any structures to be erected or located on the site including building elevations (front, side and rear).

14. A clear delineation of all areas which shall be paved or surfaced including a description of the surface material to be used.

15. A description of the method to be provided for vehicular and pedestrian access to the proposed development and public access to the river and/or public river view opportunities both before and after development; a description of the development's impact on existing views of an along the river.

16. Trail right-of-way shall be provided to the City in accordance with the general alignment(s) as shown on the Proposed Mississippi River Trail Corridor Map dated 12/1/89 and approved by the Council on 12/12/89 to allow for development of the Mississippi River Corridor Trail. Trail right-of-way shall be inclusive of street rights-of-way in existing developed areas as of August 12, 1985. The following standards shall be used for trail right-of-way (R.O.W.) widths:

Trail Segment	**R.O.W. Width**
From the easterly limits of the City along Rivlyn Ave. to the west terminus of Rivlyn Ave.	17 feet
From the west terminus of Rivlyn Ave. to the east boundary of Lot 3, Auditor's Subdivision No.96	17 feet
From the east boundary of Lot 3 Auditor's Subdivision No. 96 to the east boundary of Lot 1, Block 5 Riverside West	20 feet
Through Riverside West	17 feet
From the west boundary of Riverside West to Mississippi West County Park	35 feet
Through Mississippi West County Park	Alignment to be developed in cooperation with Anoka County
From the west boundary of Mississippi West County Park to the east boundary of Alpaca Estates	75 feet
Each side of 142nd Ave. NW through Alpaca Estates	17 feet
From the west boundary of Alpaca Estates to the highway 10 R.O.W. north of Bower's Mississippi Acres	75 feet - Alignment to be determined during platting but within limits shown on trail map.
Within the Highway 10, 169 R.O.W. to the Wayside Park	Alignment to be developed in cooperation w/Mn/DOT
From the west boundary of the Wayside Park to the West boundary of the City	75 feet - Alignment to be determined during platting but within limits shown on trail map.

17. A description of all parking facilities to be provided as part of the development of the site including analysis of parking needs generated by the proposed development.

18. A delineation of the area or areas to be dedicated for public use.

19. A delineation of the location and amounts of excavated soils to be stored on the site during construction.

20. Any other information pertinent to the particular project which in the opinion of the inspector or applicant is necessary or helpful for the review of the project.

c. It is recognized that not all types of development have the same potential for causing harm to the environment; therefore, three classifications of development are hereby established:

1. Construction of one new single family home on a lot in a plat.

2. Construction of one new single family home on a lot described by metes and bounds.

3. Development on more than one parcel of residential property or any development of commercial or industrial property. It is intended that this classification shall include all proposed plats and subdivisions which create two or more parcels.

Classification of ¶2 & ¶3 above must provide all of the information requested in the preceding §9.21.05 subd. 4b.

Classification of ¶1 above shall provide a certificate of survey to the Building Inspector at the time the building permit is applied for. The Building Inspector shall review the lot for which the building permit is requested by reviewing that data submitted for the environmental permit for the plat in which the lot is located. This review shall be made in order to insure that the "Permit Standards" adopted herein are complied with and that the construction of such a single family home will be consistent with said "Permit Standards".

Subd. 5. Expiration, Extension and Revisions

a. A permittee shall begin the work authorized by the permit within 60 days from the date of issuance of the permit unless a different date for the commencement of work is set forth in the permit. The permittee shall complete the work authorized by the permit within the time limit specified in the permit which in no event shall exceed more than 12 months from the date of issuance. The permittee shall notify the Zoning Administrator at least 24 hours prior to the commencement of work.

b. Should the work not be commenced as specified herein, then the permit shall become void. However, if prior to the date established for commencement of work the permittee makes written request to the Zoning Administrator for an extension of time to commence the work, setting forth the reasons for the required extension of not greater than one single year, then the permit shall remain in force.

c. Any revision of the originally approved site plan must be approved by the Council after findings by the Planning Commission and Zoning Administrator.

d. A permit may be approved subject to compliance with conditions which are specifically set forth in the permit and are necessary to insure compliance with the requirements contained in this Section. Such conditions may, among other matters, limit the size, kind or character of the proposed development, require the construction of other structures including special foundations and soil stabilization structures, establish required monitoring procedures, require such alterations of the site as may be necessary, require execution of an agreement between the City and the developer, require a surety in the form of a performance bond, cash escrow or letter of credit in an amount of 150% of the expected development costs as determined by the City Engineer. Accompanying such agreement shall be a statement from the owner indicating the City's right of entry to the property if it becomes necessary to complete the agreed upon work.

Subd. 6. Fees. A schedule of fees for the examination and approval of site plans leading to an environmental permit and the inspection of all required improvements and conditions in such plans shall be determined by resolution of the Council which may from time to time change such schedule. Prior to approval of any site plan, such fees shall be paid to the Zoning Administrator and be deposited to the credit of the general fund.

Subd. 7. Effect of Permit. The granting of an environmental permit under the provisions of this Section shall in no way affect the owners or the permittee's responsibility to obtain the approval required by any other statute, ordinance or regulation of any Federal or State agency or subdivision thereof.

9.21.06 DNR Permits

Subdivision 1. Excavations on shorelands where the intended purpose is connection to a protected water shall require a permit from the Zoning Administrator before construction is begun. Such permit may be obtained only after the Commissioner of Natural Resources has issued a permit to work in the beds of protected waters.

Subd. 2. Any work which will change or diminish the course, current or cross section of a protected water or wetland shall be approved by the Commissioner of Natural Resources, and such approval shall be construed to mean the issuance by the commissioner of natural Resources of a permit under the procedures of Minnesota statutes, §105.42 and other related statutes.

9.21.07 Critical River Overlay District Development Standards

Subdivision 1. Zoning Provisions. The following standards shall apply to the Critical River Area as shown on the official environmental overlay map of the City. Where the requirements of the underlying zoning district as shown on the official zoning map are more restrictive than those set forth herein, then the more restrictive standards shall apply:

a. Area Standards and Permitted Uses for the lots located in the Critical River Area and Rural Service Area

	Residential District	Business District	Industrial District
Lot Size Without public sewer any permitted use	2.5 acres*	2.5 acres	2.5 acres
Lot Width Without public sewer any permitted use	200 feet	200 feet	200 feet
Front Yard Setback Without public sewer Any permitted use	40 feet	40 feet	40 feet
Rear Yard Setback Without public sewer any permitted use	35 feet	35 feet	35 feet
Side Yard Setback Without public sewer any permitted use	10 feet	10 feet	10 feet
River Setback Without public sewer any permitted use	35 feet from bluff line or 200 feet from ordinary high water mark whichever is greater		
Maximum Building Height any permitted Building	35 feet	35 feet	35 feet
Maximum Impervious Surface Area Permitted as percent of total Lot Area**	30%	30%	30%
On Site Sewage Treatment System Setback from Ordinary High Water Level	75 feet	75 feet	75 feet

*The underlying zoning limits the density to a maximum of one per ten acre.
**Includes all structures, surfaced roads, parking lots, and other impervious areas.

b. Area Standards and Permitted Uses for the lots located in the Critical River Area and Urban Service Area

	Residential District	Business District	Industrial District
Lot Size With Public Sewer (Riparian)	20,000 sq. ft.	40,000 sq. ft.	40,000 sq. ft.
Lot Size With Public Sewer (Non-Riparian)	12,150 sq. ft.	20,000 sq. ft.	20,000 sq. ft.
Lot Width at Building Line and River Frontage	90 feet	125 feet	125 feet
Front Yard Setback	35 feet	35 feet	35 feet

Rear Yard Setback	35 feet	35 feet	35 feet
Side Yard Setback	10 feet	10 feet	10 feet
River Setback any permitted use	20 feet bluff line or 100 feet from ordinary high water mark which ever is greater		
Maximum Inpervious Surface area permitted as percent of total lot area.	30%	30%	30%
Maximum Building Height any permitted building	35 feet	35 feet	35 feet
On-Site Sewage Treatment System Setback from Ordinary High Water Level	75 feet	75 feet	75 feet

Permitted Uses: The permitted uses for the Critical River Area shall be those uses presently permitted in the respective zoning districts.

Subd. 2. Existing Uses

a. **Existing Structures**. Existing structures, the location or the use of which is inconsistent with this ordinance or the critical areas designation order shall not be eligible for any permit granted by the City for expansion, change of use, renewal of existing permit or building permit unless the following criteria are met:

1. The applicant shall provide and maintain adequate screening of the structure from the water through the use of natural vegetative means.

2. Expansion of existing structures shall be in a direction away from the riverfront.

3. The public's ability to view the river and river corridor from existing public streets shall not be further degraded by the proposed activity.

b. **Signs**

1. Advertising signs are prohibited between the flood fringe borderline and all county, state or federal highway located within 1,000 feet of the line except where the river cannot be viewed from the highway due to natural topography or existing buildings.

2. All advertising signs permitted within the critical area outside the area set forth in paragraph 1 above shall conform with the provisions of §9.12.

(a) Views of the water from vistas and public roads shall not be impaired by the placement of business or advertising signs; and

(b) Advertising signs may be located only on the shore side of public transportation routes which are parallel and adjacent to the riverfront.

3. All advertising signs, the location of which is not in conformance with this Section, are deemed non-conforming uses and shall be removed within seven years of the effective date of this Section.

c. **Existing Lots of Record**

1. Lots of record in the office of the County Register of Deeds (or Registrar of Titles) prior to July 29, 1985 (date of enactment of section) which do not meet the requirements of §9.21.07 subd. 1, may be allowed as building sites provided:

(a) Such use is permitted in the zoning district.

(b) The lot is in separate ownership from abutting lands, and

(c) All other sanitary and dimensional requirements of §9.21 Environmental Protection are complied with insofar as practical.

Subd. 3. River Crossing

a. **Utility Facilities**. Utility crossings of the Critical Area Corridor or routing within the corridor shall meet the following standards:

1. Underground placing of the utility facility shall be required unless economic, technological and land characteristic factors make underground placement infeasible. Economic considerations alone shall not be made the major determinate regarding feasibility.

2. Overhead crossings, if required, shall meet the following criteria:

(a) The crossings shall be adjacent to or part of an existing utility corridor, including bridge or overhead utility lines;

(b) All structures utilized shall be as compatible as practicable with land use, scenic views and existing transmission structures in height, material, color and design;

(c) Right-of-way clearance shall be kept to a minimum;

(d) Vegetative screening shall be utilized to the maximum extent consistent with safety requirements;

(e) Routing shall avoid unstable soils, bluff lines or high ridges, the alteration of the natural environment, including grading, shall be minimized; and

(f) The crossings shall be subject to the site planning requirements set forth in §9.21.05 subd. 4b.

3. **Utility Substations**. Utility substations shall be subject to the following standards:

(a) All substations shall be subject to the site planning requirements set forth in §9.21.05 subd. 4b, and

(b) New substations or refurbishment of existing substations shall be compatible in height, scale, building materials, landscaping and signing with the surrounding natural environment or land uses. Screening by natural means is encouraged and should be compatible with the surrounding environment.

4. **Pipelines**. Pipelines and underground utility facilities shall be subject to the following standards:

(a) All pipelines and underground facilities shall be subject to the site planning requirements set forth in §9.21.05 subd. 4b; and

(b) The facilities shall be located to avoid wetlands, woodlands and areas of unstable soils; and

(c) All underground placing of utility facilities and pipelines shall be followed by revegetation and rehabilitation to the conditions which existed on site prior to development.

b. **Public and Private Roads and Railways**. New roads and railways crossing the Critical Area Corridor or routed within the Critical Area Corridor shall meet the following standards:

1. Roads and railways shall be constructed to minimize impacts on the natural terrain and natural landscape.

2. Cuts and fills are to be avoided.

3. All roads and railways shall be subject to the site planning requirements set forth in §9.21.05 subd. 4b.

4. New roads and railways shall not utilize the river corridor as a convenient right of way for new arterials or main lines.

5. New roads and railways shall be restricted to those facilities needed to access existing and planned residential, commercial and industrial uses.

6. All new roads and railways shall provide safe pedestrian crossing points to allow access to the riverfront. Rest areas, vistas and waysides shall be provided.

Subd. 4. Riverfront Uses/Access

a. **Public Property**. Public pedestrian access shall be provided to the riverfront of all public property.

b. Public pedestrian access shall be provided to the riverfront of developments on publicly owned and publicly controlled riverfront property whether leased to private leases or not, except where:

1. Unavoidable hazards exist to the public.

2. Public pedestrian access at a particular location cannot be designed or developed to provide a pleasant view or recreational experience.

3. Access to the riverfront may be denied to any person who creates a nuisance or who engages in illegal conduct on the property and public access may be temporarily or permanently closed upon a finding by the City that such offensive conduct cannot otherwise be reasonably controlled.

c. **Public Access - Private Property**. Public pedestrian access shall be provided to the riverfront for all non-water dependent uses which are:

1. Commercial or industrial.

2. Developed as a planned unit development or requiring subdivision approval.

3. Access to the riverfront may be denied to any person who creates a nuisance or who engages in illegal conduct on the property and public access may be temporarily or permanently closed upon a finding by the City that such offensive conduct cannot otherwise be reasonably controlled.

d. **Riverfront Uses**. Riverfront uses shall be preferred in the following order:

1. Water dependent;

2. Non-water dependent with public pedestrian access; and

3. Non-water dependent without public pedestrian access.

Subd. 5. Marinas, Barge Fleeting Areas and Loading Facilities

a. **Boat Launching Ramps**

1. Boat launching ramps may be located only where access streets are adequate to handle the traffic load generated by the facility.

2. Shared or joint use accessory parking will be preferred. Loading will be permitted only at ramps. Parking areas must be screened from the river and adjoining residential property and located at least 50 feet from the normal highwater mark.

3. The impact of the accessory parking must not adversely affect the environmental quality of the site or the surrounding neighborhood.

4. Boat launching ramps and minor accessory buildings and haul off facilities must be in character and scale with the surrounding neighborhood.

b. **Public Marinas**. Public marinas shall be permitted subject to the following conditions:

1. The marina must have lavatory facilities adequate to service the marina clientele.

2. Off-street parking areas should be provided in accordance with the requirements set forth for boat launching ramps.

3. Areas for the winter storing of boats should be naturally screened from view from the river and from upland lots.

4. The marina shall be designed for and used only by pleasure craft.

5. Maximum height of any buildings or structures shall be 35 feet.

6. Accessory uses customarily incidental to public marinas including fueling stations may be permitted providing they are consistent in scale and intensity with the marina and surrounding uses.

Subd. 6. Vegetation Management

a. In Rural Open Space, Urban Developed and Urban Open Space Districts, the following standards shall apply:

1. On undeveloped islands, public recreation lands, the slope or face of bluffs, within 200 feet of the normal high water mark of the river, and within the area 40 feet landward from bluff lines, clear cutting shall not be permitted.

2. On all other lands within these districts, clear cutting shall be guided by the following provisions:

(a) Any selective or clear cutting shall require an environmental permit from the City. The permittee shall submit a plan to the City showing the

size and location of all trees on the site and which trees are proposed to be cut. The plan shall be drawn to an accurate scale. The permit application shall be reviewed by both the Building Inspector and the Tree Inspector.

(b) Clear cutting shall not be used where soil, slope or other water shed conditions are fragile and subject to injury;

(c) Clear cutting shall be conducted only where clear cut blocks, patches or strips are, in all cases, shaped and blended with the natural terrain;

(d) The size of clear cut blocks, patches or stripes shall be kept at the minimum necessary; and

(e) Where feasible, all selective cuts shall be conducted between September 15 and May 15. If natural regeneration will not result in adequate vegetation cover, areas in which clear cutting is conducted shall be replanted to prevent erosion and to maintain the aesthetic quality of the area; and where feasible, replanting shall be performed in the same spring or the following spring.

3. The selective cutting of trees greater than 4" in diameter may be permitted by local units of government when the cutting is appropriately spaced and staged so that a continuous natural cover is maintained.

b. These vegetative management standards shall not prevent the pruning and cutting of vegetation to the minimum amount necessary for the construction of bridges and roadways and for the safe installation, maintenance and operation of essential services and utility transmission services which are permitted uses.

Subd. 7. Administration of the Mississippi River Critical Area

a. In areas when overlapping standards are present the governing body shall apply the most restrictive standards.

b. No development or alteration of the Critical Area shall take place without complete compliance with Chapter 9 of the City Code. All permits for conditional uses, building, sewer system construction or extension (public or private), DNR and EQB review if applicable, and variances shall be obtained prior to any construction. Variances shall be issued only upon demonstration of hardship as defined by §9.21.03 of this Chapter. Failure to comply with all the standards and regulations of Chapter 9.01 may be enjoined by the governing body through proper legal channels. Each day a violation is permitted to exist shall constitute a separate offense.

c. **Notification Procedures and Certification**

1. Certain land use decisions which directly affect the use of land within the Mississippi Critical River Area District and involve any of the following

~~actions must be certified by the Commissioner as specified in §9.21.07 Subd. 7c2.~~

~~(a) Adopting or amending an ordinance regulating the use of land including rezoning of particular tracts of the land.~~

~~(b) Granting a variance from a provision of this Section which related to the zoning dimension provision of §9.21.07 Subd. 1 and any other zoning dimension provisions established in the Mississippi River Critical Area.~~

~~(c) Approving a plat which is inconsistent with the local land use code.~~

~~(d) Granting a conditional use permit for a private or commercial recreational development.~~

~~2. **Certification Process**~~

~~(a) A copy of all notices of any public hearings, or where a public hearing is not required, a copy of the application to consider zoning amendments, variances, or inconsistent plats under local City Code shall be sent so as to be received by the Commissioner at least 30 days prior to such hearings or meetings to consider such actions. The notice of application shall include a copy of the proposed ordinances or amendment, or a copy of the proposed inconsistent plat, or a description of the requested variance, or a copy of the conditional use permit application, where applicable.~~

~~(b) Ramsey shall notify the Commissioner of its final decision on the proposed action within ten days of the decision.~~

~~(c) The action becomes effective when and only when either:~~

~~(1) The final decision taken by Ramsey has previously received certification of approval from the Commissioner, or~~

~~(2) Ramsey received certification of approval after its final decision, or~~

~~(3) 30 days have elapsed from the Commissioner received notice of the final decision, and Ramsey has received from the Commissioner neither certification of approval nor notice of non-approval, or~~

~~(4) The Commissioner certifies approval within 30 days after conducting a public hearing.~~

~~(d) In the case the Commissioner gives notice of non approval of an ordinance, variance, or inconsistent plat, either the applicant or the~~

~~Administrator may, within 30 days of said notice, file with the Commissioner a demand for hearing. If the demand for hearing is not made within 30 days, the notice of non-approval shall become final.~~

~~(1) The hearing will be held in an appropriate local community within 60 days of the demand and after at least two weeks published notice.~~

~~(2) The hearing will be conducted in accordance with Minnesota Statutes 105.44, Subdivision 5 and 6 (1971) as amended.~~

~~(3) The Commissioner shall either certify approval or disapproval of the proposed action within 30 days of the hearing.~~

~~(c) The following recreational uses shall require certification approval by the Commissioner:~~

~~(1) Governmental campgrounds~~

~~(2) Private campgrounds~~

~~(3) Public accesses, road access type with boat launching facilities~~

~~(4) Public accesses, trail access type~~

~~(5) Temporary docks~~

~~(6) Other governmental open space recreational uses~~

~~d. **Enforcement**~~

~~1. It is declared and unlawful for any person to violate any of the terms and provisions of this Section. Violation thereof shall be a misdemeanor. Each day that a violation is permitted to exist shall constitute a separate offense.~~

~~2. In the event of a violation or a threatened violation of this Section, Ramsey or the Commissioner of Natural Resources, in addition to other remedies, may institute appropriate actions or proceedings to prevent, restrain, or abate such violations or threatened violations.~~

~~3. Any taxpayer or taxpayers of Ramsey may institute mandamas proceedings in the District Court to compel specific performance by the proper official or officials of any duty required by this Section.~~

~~Historical Note~~

~~Established by Ord. #75-08, June 27, 1975.~~

~~Ord. #85-02 replaced Chapter in whole. Effective August 12, 1985.~~

~~Ord. #88-11 amended §9.21.05 Subd. 4.b.16, increasing the planned width of a river trail corridor from 4 to 8 feet, and providing that the trail may not be established until funds become available. Also amended §9.21.07 Subd. 1.a, changing the area standard for lots located in the Critical River Area and Urban Service Area from 40,000 sq. ft. to 20,000 sq. ft. for riparian lots with public sewer in residential districts, from 20,000 sq. ft. to 12,150 sq. ft. for non-riparian lots with public sewer in residential districts, and from 125 foot lot width at building line and river frontage to 90 feet in residential districts. Effective March 19, 1989.~~

~~Ord. #90-02 replaced §9.21.05 Subd. 4 in whole, detailing specific standards for trail right-of-way widths. Effective February 26, 1990.~~

9.22 Flood Plains

9.22.01 Statutory Authorization, Findings of Fact, and Purpose

Subdivision 1. Statutory Authorization. The legislature of the State of Minnesota has, in Minnesota Statutes Chapters 103F, 104 and 462 delegated the responsibility to local government units to adopt regulations designed to minimize flood losses. Therefore, the Council of Ramsey, Minnesota does ordain as follows:

Subd. 2. Findings of Fact

a. The flood hazard areas of Ramsey, Minnesota, are subject to periodic inundation which results in potential loss of life, loss of property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures or flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety, and general welfare.

b. Methods Used to Analyze Flood Hazards. This Section is based upon a reasonable method of analyzing flood hazards which is consistent with the standards established by the Minnesota Department of Natural Resources.

Subd. 3. Statement of Purpose. It is the purpose of this Section to promote the public health, safety, and general welfare and to minimize those losses described in §9.22.01 Subd. 2a by provisions contained herein.

9.22.02 General Provisions

Subdivision 1. Lands to Which Section Applies. This Section shall apply to all lands within the jurisdiction of Ramsey shown on the Official Zoning Map and/or the attachments thereto as being located within the boundaries of the Floodway, Flood Fringe, or General Flood Plain Districts.

Subd. 2. Establishment of Official Zoning Map. The Official Zoning Map together with all materials attached thereto is hereby adopted by reference and declared to be a part of this City Code. The attached material shall include the Flood Insurance Study for the City prepared by the Federal Insurance Administration dated May, 1979, and the Flood Boundary and Floodway Map and Flood Insurance Rate Map dated November 1, 1979 therein and the revised FB-FW Panel 20 of 20 and the Revised Floodway Data Table prepared by the Minnesota DNR, both dated March 31, 1987. The Official Zoning Map shall be on file in the Office of the Administrator and the Zoning Administrator.

Subd. 3. Regulatory Flood Protection Elevations. The Regulatory Flood Protection Elevation shall be an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway.

Subd. 4. Interpretation

a. In their interpretation and application, the provisions of this Section shall be held to be minimum requirements and shall be liberally construed in favor of the Governing Body and shall not be deemed a limitation or repeal of any other powers granted by State Statutes.

b. The boundaries of the zoning districts shall be determined by scaling distances on the Official Zoning Map. Where interpretation is needed as to the exact location of the boundaries of the district as shown on the Official Zoning Map, as for example where there appears to be a conflict between a mapped boundary and actual field conditions and there is a formal appeal of the decision of the Zoning Administrator, the Board of Adjustment shall make the necessary interpretation. All decisions will be based on elevations on the regional (100-year) flood profile and other available technical data. Persons contesting the location of the district boundaries shall be given a reasonable opportunity to present their case to the Board and to submit technical evidence.

Subd. 5. Abrogation and Greater Restrictions. It is not intended by this Section to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this Section imposes greater restrictions, the provisions of this Section shall prevail. All other ordinances inconsistent with this Section are hereby repealed to the extent of the inconsistency only.

Subd. 6. Warning and Disclaimer of Liability. This Section does not imply that areas outside the flood plain districts or land uses permitted within such districts will be free from flooding or flood damages. This Section shall not create liability on the part of Ramsey or any officer or employee thereof for any flood damages that result from reliance on this Section or any administrative decision lawfully made thereunder.

Subd. 7. Severability. If any section, clause, provision, or portion of this Section is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this Section shall not be affected thereby.

Subd. 8. Definitions. Unless specifically defined below, words or phrases used in this Section shall be interpreted so as to give them the same meaning as they have in common usage and so as to give this Section its most reasonable application.

Accessory Use or Structure – A use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.

Basement – means any area of a structure, including crawl spaces, having its floor or base subgrade (below ground level) on all four sides, regardless of the depth of excavation below ground level.

Conditional Use – means a specific type of structure or land use listed in the official control that may be allowed but only after an in-depth review procedure and with appropriate conditions or restrictions as provided in the official zoning controls or building codes and upon a finding that:

(1) certain conditions as detailed in the Zoning Chapter exist and

(2) the structure and/or land use conform to the comprehensive land use plan if one exists and are compatible with the existing neighborhood.

Equal Degree of Encroachment – A method of determining the location of floodway boundaries so that flood plain lands on both sides of a stream are capable of conveying a proportionate share of flood flows.

Flood – A temporary increase in the flow or stage of a stream or in the stage of a wetland or lake that results in the inundation of normally dry areas.

Flood Frequency – The frequency for which it is expected that a specific flood stage or discharge may be equaled or exceeded.

Flood Fringe – That portion of the flood plain outside of the floodway. Flood fringe is synonymous with the term "floodway fringe" used in the Flood Insurance Study for Ramsey.

Flood Plain – The beds proper and the areas adjoining a wetland, lake or watercourse which have been, or hereafter may be, covered by the regional flood.

Flood Proofing – A combination of structural provisions, changes, or adjustments to properties and structures subject to flooding, primarily for the reduction or elimination of flood damages.

Floodway – The bed of a wetland or lake and the channel of a watercourse and those portions of the adjoining flood plain which are reasonably required to carry or store the regional flood discharge.

Obstruction – Any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel modification, culvert, building, wire, fence, stockpile, refuse, fill, structure, or matter in, along, across, or projecting into any channel, watercourse, or regulatory flood plain which may impede, retard, or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water.

Principal Use or Structure – means all uses or structures that are not accessory uses or structures.

Reach – A hydraulic engineering term to describe a longitudinal segment of a stream or river influenced by a natural or man-made obstruction. In an urban area, the segment of a stream or river between two consecutive bridge crossings would most typically constitute a reach.

Regional Flood – A flood which is representative of large floods known to have occurred generally in Minnesota and reasonably characteristic of what can be expected to occur on an average frequency in the magnitude of the 100 year recurrence interval. Regional flood is synonymous with the term "base flood" used in the Flood Insurance Study.

Regulatory Flood Protection Elevation – The Regulatory Flood Protection Elevation shall be an elevation no lower than one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that result from designation of a floodway.

Structure – Anything constructed or erected on the ground or attached to the ground or on site utilities, including, but not limited to, buildings, factories, sheds, detached garages, cabins, manufactured homes, travel trailers/vehicles not meeting the exemption criteria specified in § 9.22.09 Subd. 3a of the City Code and other similar items.

Variance – means a modification of a specific permitted development standard required in an official control including this Section to allow an alternative development standard not stated as acceptable in the official control, but only as applied to a particular property for the purpose of alleviating a hardship, practical difficulty or unique circumstance as defined and elaborated upon in a community's respective planning and zoning enabling legislation.

9.22.03 Establishment of Zoning Districts

Subdivision 1. Districts

a. **Floodway District**. The Floodway District shall include those areas designated as floodway on the Flood Boundary and Floodway Map adopted in §9.22.02.

b. **Flood Fringe District**. The Flood Fringe District shall include those areas designated as floodway fringe on the Flood Boundary and Floodway Map adopted in §9.22.02.

c. **General Flood Plain District**. The General Flood Plain District shall include those areas designated as unnumbered A Zones on the Flood Insurance Rate Map adopted in §9.22.02.

Subd. 2. Compliance. No new structure or land shall hereafter be used and no structure shall be located, extended, converted, or structurally altered without full compliance with the terms of this Section and other applicable regulations which apply to uses within the jurisdiction of this City Code. Within the Floodway, Flood Fringe and General Flood Plain Districts, all uses not listed as permitted uses or conditional uses in §9.22.04, §9.22.05 and §9.22.06 that follow, respectively, shall be prohibited. In addition, a caution is provided here that:

a. New manufactured homes, replacement manufactured homes and certain travel trailers and travel vehicles are subject to the general provisions of this City Code and specifically §9.22.09;

b. Modifications, additions, structural alterations or repair after damage to existing nonconforming structures and nonconforming uses of structures or land are regulated by the general provisions of this City Code and specifically §9.22.11; and

c. As built elevations for elevated or flood proofed structures must be certified by ground surveys and flood proofing techniques must be designed and certified by a registered professional engineer or architect as specified in the general provisions of this City Code and specifically as stated in §9.22.10 of this City Code.

9.22.04 Floodway District (FW)

Subdivision 1. Permitted Uses

a. General farming, pasture, grazing, outdoor plant nurseries, horticulture, truck farming, forestry, sod farming, and wild crop harvesting.

b. Industrial-commercial loading areas, parking areas, and airport runways

c. Private and public golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, and single or multiple purpose recreational trails.

d. Residential lawns, gardens, parking areas, and play areas.

Subd. 2. Standards for Floodway Permitted Uses

a. The use shall have a low flood damage potential.

b. The use shall be permissible in the underlying zoning district if one exists.

c. The use shall not obstruct flood flows or increase flood elevations and shall not involve structures, fill, obstructions, excavations or storage of materials or equipment.

Subd. 3. Conditional Uses

a. Structures accessory to the uses listed in §9.22.04 Subd. 1 above and the uses listed in §9.22.04 Subd. 3b through 3i.

b. Extraction and storage of sand, gravel, and other materials.

c. Marinas, boat rentals, docks, piers, wharfs, and water control structures.

d. Railroads, streets, bridges, utility transmission lines, and pipelines.

e. Storage yards for equipment, machinery, or materials.

f. Placement of fill.

g. Travel trailers and travel vehicles either on individual lots of record or in existing or new subdivisions or commercial or condominium type campgrounds, subject to the exemptions and provisions of §9.22.09 Subd. 3 of this City Code.

h. Structural works for flood control such as levees, dikes and floodwalls constructed to any height where the intent is to protect individual structures and levees or dikes

where the intent is to protect agricultural crops for a frequency flood event equal to or less than the 10-year frequency flood event.

Subd. 4. Standards for Floodway Conditional Uses

a. **All Uses**. No structure (temporary or permanent), fill (including fill for roads and levees), deposit, obstruction, storage of materials or equipment, or other uses may be allowed as a Conditional Use that will cause any increase in the stage of the 100-year or regional flood or cause an increase in flood damages in the reach or reaches affected.

b. All floodway Conditional Uses shall be subject to the procedures and standards contained in §9.22.10 Subd. 4 of this City Code.

c. The Conditional Use shall be permissible in the underlying zoning district.

d. **Fill**

1. Fill, dredge spoil and all other similar materials deposited or stored in the flood plain shall be protected from erosion by vegetative cover, mulching, rip-rap or other acceptable method.

2. Dredge spoil sites and sand and gravel operations shall not be allowed in the floodway unless a long-term site development plan is submitted which includes an erosion/sedimentation prevention element to the plan.

3. As an alternative, and consistent with Subsection d2 immediately above, dredge spoil disposal and sand and gravel operations may allow temporary, on-site storage of fill or other materials which would have caused an increase to the stage of the 100-year or regional flood but only after the Governing Body has received an appropriate plan which assures the removal of the materials from the floodway based upon the flood warning time available. The Conditional Use Permit must be title registered with the property in the Office of the County Recorder.

e. **Accessory Structures**

1. Accessory structures shall not be designed for human habitation.

2. Accessory structures, if permitted, shall be constructed and placed on the building site so as to offer the minimum obstruction to the flow of flood waters.

(a) Whenever possible, structures shall be constructed with the longitudinal axis parallel to the direction of flood flow, and,

(b) So far as practicable, structures shall be placed approximately on the same flood flow lines as those of adjoining structures.

3. Accessory structures shall be elevated on fill or structurally dry flood proofed in accordance with the FP-1 or FP-2 flood proofing classifications in the State Building Code. As an alternative, an accessory structure may be flood proofed to the FP-3 or FP-4 flood proofing classification in the State Building Code provided the accessory structure constitutes a minimal investment, does not exceed 500 square feet in size, and for a detached garage, the detached garage must be used solely for parking of vehicles and limited storage. All flood proofed accessory structures must meet the following additional standards, as appropriate:

(a) The structure must be adequately anchored to prevent flotation, collapse or lateral movement of the structure and shall be designed to equalize hydrostatic flood forces on exterior walls; and

(b) Any mechanical and utility equipment in a structure must be elevated to or above the Regulatory Flood Protection Elevation or properly flood proofed.

f. Storage of Materials and Equipment:

1. The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.

2. Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning and in accordance with a plan approved by the Governing Body.

g. Structural works for flood control that will change the course, current or cross-section of protected wetlands or public waters shall be subject to the provisions of Minnesota Statute, Chapter 103G. Community-wide structural works for flood control intended to remove areas from the regulatory flood plain shall not be allowed in the floodway.

h. A levee, dike or floodwall constructed in the floodway shall not cause an increase to the 100-year or regional flood and the technical analysis must assume equal conveyance or storage loss on both sides of a stream.

9.22.05 Flood Fringe District (FF)

Subdivision 1. Permitted Uses. Permitted Uses shall be those uses of land or structures listed as Permitted Uses in the underlying zoning use district(s). All Permitted Uses shall comply with the standards for Flood Fringe "Permitted Uses" listed in §9.22.05 Subd. 2 and the "Standards for all Flood Fringe Uses" listed in §9.22.05 Subd. 5.

Subd. 2. Standards for Flood Fringe Permitted Uses

a. All structures, including accessory structures, must be elevated on fill so that the lowest floor including basement floor is at least 1 ft above the Regulatory Flood

Protection Elevation. The finished fill elevation for structures shall be no lower than the Regulatory Flood Protection Elevation and the fill shall extend at such elevation at least fifteen (15) feet beyond the outside limits of the structure erected thereon.

b. As an alternative to elevation on fill, accessory structures that constitute a minimal investment and that do not exceed 500 square feet for the outside dimension at ground level may be internally flood proofed in accordance with §9.22.04 Subd. 4c3.

c. The cumulative placement of fill where at any one time in excess of one thousand (1,000) cubic yards of fill is located on the parcel shall be allowable only as a Conditional Use, unless said fill is specifically intended to elevate a structure in accordance with §9.22.05 Subd. 2a of this City Code.

d. The storage of any materials or equipment shall be elevated on fill to the Regulatory Flood Protection Elevation.

e. The provisions of §9.22.05 Subd. 5 of this City Code shall apply.

Subd. 3. Conditional Uses. Any structure that is not elevated on fill or flood proofed in accordance with §9.22.05 Subd. 2 a & b or any use of land that does not comply with the standards in §9.22.05 Subd. c & d shall only be allowable as a Conditional Use. An application for a Conditional Use shall be subject to the standards and criteria and evaluation procedures specified in §9.22.05 Subd. 4 & 5 and §9.22.10 Subd. 4 of this City Code.

Subd. 4. Standards for Flood Fringe Conditional Uses

a. Alternative elevation methods other than the use of fill may be utilized to elevate a structure's lowest floor to 1 foot above the Regulatory Flood Protection Elevation. These alternative methods may include the use of stilts, pilings, parallel walls, etc., or above grade, enclosed areas such as crawl spaces or tuck under garages. The base or floor of an enclosed area shall be considered above grade and not a structure's basement or lowest floor if: 1) the enclosed area is above grade on at least one side of the structure; 2) it is designed to internally flood and is constructed with flood resistant materials; and 3) it is used solely for parking of vehicles, building access or storage. The above noted alternative elevation methods are subject to the following additional standards:

1. Design and Certification - The structure's design and as-built condition must be certified by a registered professional engineer or architect as being in compliance with the general design standards of the State Building Code and, specifically, that all electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities must be at least 1 ft above the Regulatory Flood Protection Elevation or be designed to prevent flood water from entering or accumulating within these components during times of flooding.

2. Specific Standards for Above-grade, Enclosed Areas – Above-grade, fully enclosed areas such as crawl spaces or tuck-under garages must be designed to internally flood and the design plans must stipulate:

(a) The minimum area of openings in the walls where internal flooding is to be used as a flood-proofing technique. When openings are placed in a structure's walls to provide for entry of flood waters to equalize pressures, the bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of flood waters.

(b) That the enclosed area will be designed of flood resistant materials in accordance with the FP-3 or FP-4 classifications in the State Building Code and shall be used solely for building access, parking of vehicles or storage.

b. Basements, as defined in §9.22.02 Subd. 8, shall be subject to the following:

1. Residential basement floor elevation shall not be allowed to be constructed below 1 ft above the Regulatory Flood Protection Elevation.

2. Non-residential basements may be allowed below the Regulatory Flood Protection Elevation provided the basement is structurally dry flood proofed in accordance with §9.22.05 Subd. 4c of this City Code.

c. All areas of non-residential structures including basements to be placed below the Regulatory Flood Protection Elevation shall be flood proofed in accordance with the structurally dry flood proofing classifications in the State Building Code. Structurally dry flood proofing must meet the FP-1 or FP-2 flood proofing classification in the State Building Code and this shall require making the structure watertight with the walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy. Structures flood proofed to the FP-3 or FP-4 classification shall not be permitted.

d. When at any one time more than 1,000 cubic yards of fill or other similar material is located on a parcel for such activities as on-site storage, landscaping, sand and gravel operations, landfills, roads, dredge spoil disposal or construction of flood control works, an erosion/sedimentation control plan must be submitted unless the community is enforcing a state-approved shoreland management ordinance. In the absence of a state-approved shoreland ordinance, the plan must clearly specify methods to be used to stabilize the fill on site for a flood event at a minimum of the 100-year or regional flood event. The plan must be prepared and certified by a registered professional engineer or other qualified individual acceptable to the Governing Body. The plan may incorporate alternative procedures for removal of the material from the flood plain if adequate flood warning time exists.

e. Storage of Materials and Equipment:

1. The storage or processing of materials that are, in time of flooding, flammable, explosive, or potentially injurious to human, animal, or plant life is prohibited.

2. Storage of other materials or equipment may be allowed if readily removable from the area within the time available after a flood warning and in accordance with a plan approved by the Governing Body.

f. The provisions of §9.22.05 Subd. 5 of this City Code shall also apply.

Subd. 5. Standards for All Flood Fringe Uses

a. All new principal structures must have vehicular access at or above an elevation not more than two (2) feet below the Regulatory Flood Protection Elevation. If a variance to this requirement is granted, the Board of Adjustment must specify limitations on the period of use or occupancy of the structure for times of flooding and only after determining that adequate flood warning time and local flood emergency response procedures exist.

b. Commercial Uses - accessory land uses, such as yards, railroad tracks, and parking lots may be at elevations lower than the Regulatory Flood Protection Elevation. However, a permit for such facilities to be used by the employees or the general public shall not be granted in the absence of a flood warning system that provides adequate time for evacuation if the area would be inundated to a depth greater than two feet or be subject to flood velocities greater than four feet per second upon occurrence of the regional flood.

c. Manufacturing and Industrial Uses – measures shall be taken to minimize interference with normal plant operations especially along streams having protracted flood durations. Certain accessory land uses such as yards and parking lots may be at lower elevations subject to requirements set out in §9.22.05 Subd. 5b. In considering permit applications, due consideration shall be given to needs of an industry whose business requires that it be located in flood plain areas.

d. Fill shall be properly compacted and the slopes shall be properly protected by the use of rip rap, vegetative cover or other acceptable method. The Federal Emergency Management Agency (FEMA) has established criteria for removing the special flood hazard area designation for certain structures properly elevated on fill above the 100-year flood elevation. FEMA's requirements incorporate specific fill compaction and side slope protection standards for multi-structure or multi-lot developments. These standards should be investigated prior to the initiation of site preparation if a change of special flood hazard area designation will be requested.

e. Flood plain developments shall not adversely affect the hydraulic capacity of the channel and adjoining flood plain of any tributary watercourse or drainage system where a floodway or other encroachment limit has not been specified on the Official Zoning Map.

f. Standards for travel trailers and travel vehicles are contained in §9.22.09 Subd. 3.

g. All manufactured homes must be securely anchored to an adequately anchored foundation system that resists flotation, collapse and lateral movement. Methods of anchoring may include, but are not to be limited to, use of over the top or frame ties to ground anchors. This requirement is in addition to applicable state or local anchoring requirements for resisting wind forces.

9.22.06 General Flood Plain District

Subdivision 1. Permissible Uses

a. The uses listed in §9.22.04 Subd. 1 of this City Code shall be permitted uses.

b. All other uses shall be subject to the floodway/flood fringe evaluation criteria pursuant to §9.22.06 Subd. 2. §9.33.04 shall apply if the proposed use is in the Floodway District and §9.22.05 shall apply if the proposed use is in the Flood Fringe District.

Subd. 2. Procedures for Floodway and Flood Fringe Determinations Within the General Flood Plain District

a. Upon receipt of an application for a Conditional Use Permit for a use within the General Flood Plain District, the applicant shall be required to furnish such of the following information as is deemed necessary by the Zoning Administrator for the determination of the Regulatory Flood Protection Elevation and whether the proposed use is within the Floodway or Flood Fringe District.

1. A typical valley cross-section showing the channel of the stream, elevation of land areas adjoining each side of the channel, cross sectional areas to be occupied by the proposed development, and high water information.

2. Plan (surface view) showing elevations or contours of the ground; pertinent structure, fill, or storage elevations; size, location, and spatial arrangement of all proposed and existing structures on the site; location and elevations of streets; photographs showing existing land uses and vegetation upstream and downstream; and soil type.

3. Profile showing the slope of the bottom of the channel or flow line of the stream for at least 500 feet in either direction from the proposed development.

b. The applicant shall be responsible to submit one copy of the above information to a designated engineer or other expert person or agency for technical assistance in determining whether the proposed use is in the Floodway or Flood Fringe District and to determine the Regulatory Flood Protection Elevation. Procedures consistent with Minnesota Regulations 1983, Parts 6120.5000 - 6120.6200 shall be followed in this expert evaluation. The designated engineer or expert is strongly encouraged to

discuss the proposed technical evaluation methodology with the respective Department of Natural Resources' Area Hydrologist prior to commencing the analysis. The designated engineer or expert shall:

1. Estimate the peak discharge of the regional flood.

2. Calculate the water surface profile of the regional flood based upon a hydraulic analysis of the stream channel and overbank areas.

3. Compute the floodway necessary to convey or store the regional flood without increasing flood stages more than 0.5 foot. A lesser stage increase than 0.5 foot shall be required if, as a result of the additional stage increase, increased flood damages would result. An equal degree of encroachment on both sides of the stream within the reach shall be assumed in computing floodway boundaries.

c. The Zoning Administrator shall present the technical evaluation and findings of the designated engineer or expert to the Council. The Council must formally accept the technical evaluation and the recommended Floodway and/or Flood Fringe District boundary or deny the permit application. The Council, prior to official action, may submit the application and all supporting data and analyses to the Federal Emergency Management Agency, the Department of Natural Resources or the Planning Commission for review and comment. Once the Floodway and Flood Fringe Boundaries have been determined, the Governing Body shall refer the matter back to the Zoning Administrator who shall process the permit application consistent with the applicable provisions of §9.22.04 and §9.22.05 of this City Code.

9.22.07 Subdivisions

Subdivision 1. Requirements. Refer to §9.50.38.

9.22.08 Public Utilities, Railroads, Roads, and Bridges

Subdivision 1. Public Utilities. All public utilities and facilities such as gas, electrical, sewer, and water supply systems to be located in the flood plain shall be flood proofed in accordance with the State Building Code or elevated to above the Regulatory Flood Protection Elevation.

Subd. 2. Public Transportation Facilities. Railroad tracks, roads, and bridges to be located within the flood plain shall comply with §9.22.04 and §9.22.05 of this City Code. Elevation to the Regulatory Flood Protection Elevation shall be provided where failure or interruption of these transportation facilities would result in danger to the public health or safety or where such facilities are essential to the orderly functioning of the area. Minor or auxiliary roads or railroads may be constructed at a lower elevation where failure or interruption of transportation services would not endanger the public health or safety.

Subd. 3. On-site Sewage Treatment and Water Supply Systems. Where public utilities are not provided: 1) On-site water supply systems must be designed to minimize or eliminate infiltration of flood waters into the systems; and 2) New or replacement on-site sewage treatment systems

must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters and they shall not be subject to impairment or contamination during times of flooding. Any sewage treatment system designed in accordance with the State's current statewide standards for on-site sewage treatment systems shall be determined to be in compliance with this Section.

9.22.09 Manufactured Homes and Manufactured Home Parks and Placement of Travel Trailers and Travel Vehicles

Subdivision 1. New manufactured home parks and expansions to existing manufactured home parks shall be subject to the provisions placed on subdivisions by §9.50 of the Ramsey City Code.

Subd. 2. The placement of new or replacement manufactured homes in existing manufactured home parks or on individual lots of record that are located in flood plain districts will be treated as a new structure and may be placed only if elevated in compliance with §9.22.05 of this City Code. If vehicular road access for pre-existing manufactured home parks is not provided in accordance with §9.22.05 Subd. 5a, then replacement manufactured homes will not be allowed until the property owner(s) develops a flood warning emergency plan acceptable to the Council.

a. All manufactured homes must be securely anchored to an adequately anchored foundation system that resists flotation, collapse and lateral movement. Methods of anchoring may include, but are not to be limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state or local anchoring requirements for resisting wind forces.

Subd. 3. Travel trailers and travel vehicles that do not meet the exemption criteria specified in §9.22.09 Subd. 3a shall be subject to the provisions of this City Code and as specifically spelled out in §9.22.09 Subd. 3c & d.

a. **Exemption.** Travel trailers and travel vehicles are exempt from the provisions of this Section if they are placed in any of the areas listed in §9.22.09 Subd. 3b below and further they meet the following criteria:

1. Have current licenses required for highway use.

2. Are highway ready meaning on wheels or the internal jacking system, are attached to the site only by quick disconnect type utilities commonly used in campgrounds and trailer parks and the travel trailer/travel vehicle has no permanent structural type additions attached to it.

3. The travel trailer or travel vehicle and associated use must be permissible in any pre existing, underlying zoning use district.

b. Areas Exempted For Placement of Travel/Recreational Vehicles:

1. Individual lots or parcels of record.

2. Existing commercial recreational vehicle parks or campgrounds.

3. Existing condominium type associations.

c. Travel trailers and travel vehicles exempted in §9.22.09 Subd. 3a lose this exemption when development occurs on the parcel exceeding $500 dollars for a structural addition to the travel trailer/travel vehicle or an accessory structure such as a garage or storage building. The travel trailer/travel vehicle and all additions and accessory structures will then be treated as a new structure and shall be subject to the elevation/flood proofing requirements and the use of land restrictions specified in §9.22.04 and §9.22.05 of this City Code.

d. New commercial travel trailer or travel vehicle parks or campgrounds and new residential type subdivisions and condominium associations and the expansion of any existing similar use exceeding five (5) units or dwelling sites shall be subject to the following:

1. Any new or replacement travel trailer or travel vehicle will be allowed in the Floodway or Flood Fringe Districts provided said trailer or vehicle and its contents are placed on fill above the Regulatory Flood Protection Elevation and proper elevated road access to the site exists in accordance with §9.22.05 Subd. 5a of this City Code. No fill placed in the floodway to meet the requirements of this Section shall increase flood stages of the 100-year or regional flood.

2. All new or replacement travel trailers or travel vehicles not meeting the criteria of Subsection d1 may, as an alternative, be allowed as a Conditional Use if in accordance with the following provisions and the provisions of §9.22.10 Subd. 4 of the City Code. The applicant must submit an emergency plan for the safe evacuation of all vehicles and people during the 100-year flood. Said plan shall be prepared by a registered engineer or other qualified individual and shall demonstrate that adequate time and personnel exist to carry out the evacuation. All attendant sewage and water facilities for new or replacement travel trailers or other recreational vehicles must be protected or constructed so as to not be impaired or contaminated during times of flooding in accordance with §9.22.08 Subd. 3 of this City Code.

9.22.10 Administration

Subdivision 1. Zoning Administrator. A Zoning Administrator or other official designated by the Administrator shall administer and enforce this Section. If the Zoning Administrator finds a violation of the provisions of this Section the Zoning Administrator shall notify the person responsible for such violation in accordance with the procedures stated in §9.22.12 of the City Code.

Subd. 2. Permit Requirements

a. **Permit Required**. A Permit issued by the Zoning Administrator in conformity with the provisions of this City Code shall be secured prior to the erection, addition, or alteration of any building, structure, or portion thereof; prior to the use or change of use of a building, structure, or land; prior to the change or extension of a

nonconforming use; and prior to the placement of fill, excavation of materials, or the storage of materials or equipment within the flood plain.

b. **Application for Permit**. Application for a Permit shall be made in duplicate to the Zoning Administrator on forms furnished by the Zoning Administrator and shall include the following where applicable: plans in duplicate drawn to scale, showing the nature, location, dimensions, and elevations of the lot; existing or proposed structures, fill, or storage of materials; and the location of the foregoing in relation to the stream channel.

c. **State and Federal Permits**. Prior to granting a Permit or processing an application for a Conditional Use Permit or Variance, the Zoning Administrator shall determine that the applicant has obtained all necessary State and Federal Permits.

d. **Certificate of Zoning Compliance for a New, Altered, or Nonconforming Use**. It shall be unlawful to use, occupy, or permit the use or occupancy of any building or premises or part thereof hereafter created, erected, changed, converted, altered, or enlarged in its use or structure until a Certificate of Zoning Compliance shall have been issued by the Zoning Administrator stating that the use of the building or land conforms to the requirements of this City Code.

e. **Construction and Use to be as Provided on Applications, Plans, Permits, Variances and Certificates of Zoning Compliance**. Permits, Conditional Use Permits, or Certificates of Zoning Compliance issued on the basis of approved plans and applications authorize only the use, arrangement, and construction set forth in such approved plans and applications, and no other use, arrangement, or construction. Any use, arrangement, or construction at variance with that authorized shall be deemed a violation of this City Code, and punishable as provided by §9.22.12 of this City Code.

f. **Certification**. The applicant shall be required to submit certification by a registered professional engineer, registered architect, or registered land surveyor that the finished fill and building elevations were accomplished in compliance with the provisions of this City Code. Flood proofing measures shall be certified by a registered professional engineer or registered architect.

g. **Record of First Floor Elevation**. The Zoning Administrator shall maintain a record of the elevation of the lowest floor (including basement) of all new structures and alterations or additions to existing structures in the flood plain. The Zoning Administrator shall also maintain a record of the elevation to which structures or alterations and additions to structures are flood proofed.

Subd. 3. Board of Adjustment

a. **Rules**. The Board of Adjustment shall adopt rules for the conduct of business and may exercise all of the powers conferred on such Boards by State law.

b. **Administrative Review**. The Board shall hear and decide appeals where it is alleged there is error in any order, requirement, decision, or determination made by an administrative official in the enforcement or administration of this Section.

c. **Variances**. The Board may authorize upon appeal in specific cases such relief or variance from the terms of this Section as will not be contrary to the public interest and only for those circumstances such as hardship, practical difficulties or circumstances unique to the property under consideration, as provided for in the respective enabling legislation for planning and zoning for cities or counties. In the granting of such variance, the Board of Adjustment shall clearly identify in writing the specific conditions that existed consistent with the criteria specified in the respective enabling legislation which justified the granting of the variance. No variance shall have the effect of allowing in any district uses prohibited in that district, permit a lower degree of flood protection than the Regulatory Flood Protection Elevation for the particular area, or permit standards lower than those required by State law.

d. **Hearings**. Upon filing with the Board of Adjustment of an appeal from a decision of the Zoning Administrator, or an application for a variance, the Board shall fix a reasonable time for a hearing and give due notice to the parties in interest as specified by law. The Board shall submit by mail to the Commissioner of Natural Resources a copy of the application for proposed variances sufficiently in advance so that the Commissioner will receive at least ten days notice of the hearing.

e. **Decisions**. The Board shall arrive at a decision on such appeal or variance within sixty (60) days of the adjournment of the public hearing. In passing upon an appeal, the Board may, so long as such action is in conformity with the provisions of this Section, reverse or affirm, wholly or in part, or modify the order, requirement, decision or determination of the Zoning Administrator or other public official. It shall make its decision in writing setting forth the findings of fact and the reasons for its decisions. In granting a variance the Board may prescribe appropriate conditions and safeguards such as those specified in §9.22.10 Subd. 4f, which are in conformity with the purposes of this Section. Violations of such conditions and safeguards, when made a part of the terms under which the variance is granted, shall be deemed a violation of this Section punishable under §9.22.12. A copy of all decisions granting variances shall be forwarded by mail to the Commissioner of Natural Resources within 10 days of such action.

f. **Appeals**. Appeals from any decision of the Board may be made, and as specified in 9.03.07 of the Ramsey City Code and Minnesota Statutes.

g. **Flood Insurance Notice and Record Keeping**. The Zoning Administrator shall notify the applicant for a variance that:

1) The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance up to amounts as high as $25 for $100 of insurance coverage; and

2) Such construction below the 100 year or regional flood level increases risks to life and property. Such notification shall be maintained with a record of all variance actions. A community shall maintain a record of all variance actions, including justification for their issuance, and report such variances issued in its annual or biennial report submitted to the Administrator of the National Flood Insurance Program.

Subd. 4. Conditional Uses. The processing of conditional use permit (CUP) applications shall follow the procedure as outlined in §9.03.04. Applications shall be submitted to the Zoning Administrator who shall forward the application to the Planning and Zoning Commission and the Council for consideration.

a. **Hearings**. Upon filing with the Zoning Administrator an application for a CUP the Zoning Administrator shall submit by mail to the Commissioner of Natural Resources a copy of the application for proposed Conditional Use sufficiently in advance so that the Commissioner will receive at least ten days notice of the hearing.

b. **Decisions**. The Council shall arrive at a decision on a CUP within 60 days of the adjournment of the Planning Commission public hearing. In granting a CUP the Council shall prescribe appropriate conditions and safeguards, in addition to those specified in §9.22.10 Subd. 4f, which are in conformity with the purposes of this Section. Violations of such conditions and safeguards, when made a part of the terms under which the CUP is granted, shall be deemed a violation of this Section punishable under §9.22.12. A copy of all decisions granting CUP's shall be forwarded by mail to the Commissioner of Natural Resources within 10 days of such action.

c. **Procedures to be Followed by the Planning Commission in Passing on CUP Applications Within all Flood Plain Districts**

1. Require the applicant to furnish such of the following information and additional information as deemed necessary by the Planning Commission for determining the suitability of the particular site for the proposed use:

(a) Plans in triplicate drawn to scale showing the nature, location, dimensions, and elevation of the lot, existing or proposed structures, fill, storage of materials, flood proofing measures, and the relationship of the above to the location of the stream channel.

(b) Specifications for building construction and materials, flood proofing, filling, dredging, grading, channel improvement, storage of materials, water supply and sanitary facilities.

2. Transmit one copy of the information described in Subsection c1 to a designated engineer or other expert person or agency for technical assistance, where necessary, in evaluating the proposed project in relation to flood heights and velocities, the seriousness of flood damage to the use, the adequacy of the plans for protection, and other technical matters.

3. Based upon the technical evaluation of the designated engineer or expert, the Council shall determine the specific flood hazard at the site and evaluate the suitability of the proposed use in relation to the flood hazard.

d. Factors Upon Which the Decision of the Council Shall Be Based. In passing upon Conditional Use applications, the Council shall consider all relevant factors specified in other sections of this City Code, and:

1. The danger to life and property due to increased flood heights or velocities caused by encroachments.

2. The danger that materials may be swept onto other lands or downstream to the injury of others or they may block bridges, culverts or other hydraulic structures.

3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination, and unsanitary conditions.

4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.

5. The importance of the services provided by the proposed facility to the community.

6. The requirements of the facility for a waterfront location.

7. The availability of alternative locations not subject to flooding for the proposed use.

8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.

9. The relationship of the proposed use to the comprehensive plan and flood plain management program for the area.

10. The safety of access to the property in times of flood for ordinary and emergency vehicles.

11. The expected heights, velocity, duration, rate of rise, and sediment transport of the flood waters expected at the site.

12. Such other factors which are relevant to the purposes of this Section.

e. **Time for Acting on Application**. The Council shall act on an application in the manner described above within 60 days of the adjournment of the Planning Commission public hearing except that where additional information is required

pursuant to §9.22.10 Subd. 4d of this City Code. The Council shall render a written decision within 30 days from the receipt of such additional information.

f. **Conditions Attached to Conditional Use Permits**. Upon consideration of the factors listed above and the purpose of this Section, the Council shall attach such conditions to the granting of CUPs as it deems necessary to fulfill the purposes of this City Code. Such conditions may include, but are not limited to, the following:

1. Modification of waste treatment and water supply facilities.

2. Limitations on period of use, occupancy, and operation.

3. Imposition of operational controls, sureties, and deed restrictions.

4. Requirements for construction of channel modifications, compensatory storage, dikes, levees, and other protective measures.

5. Flood proofing measures, in accordance with the State Building Code and this City Code. The applicant shall submit a plan or document certified by a registered professional engineer or architect that the flood proofing measures are consistent with the Regulatory Flood Protection Elevation and associated flood factors for the particular area.

9.22.11 Nonconforming Uses

Subdivision 1. A structure or the use of a structure or premises which was lawful before the passage or amendment of this Section but which is not in conformity with the provisions of this Section may be continued subject to the following conditions:

a. No such use shall be expanded, changed, enlarged, or altered in a way which increases its nonconformity.

b. Any alteration or addition to a nonconforming structure or nonconforming use which would result in increasing the flood damage potential of that structure or use shall be protected to the Regulatory Flood Protection Elevation in accordance with any of the elevation on fill or flood proofing techniques (i.e. , FP 1 thru FP 4 floodproofing classifications) allowable in the State Building Code, except as further restricted in §9.22.11 Subd. 1c.

c. The cost of any structural alterations or additions to any nonconforming structure over the life of the structure shall not exceed 50 percent of the market value of the structure unless the conditions of this Section are satisfied. The cost of all structural alterations and additions constructed since the adoption of the Community's initial flood plain controls must be calculated into today's current cost which will include all costs such as construction materials and a reasonable cost placed on all manpower or labor. If the current cost of all previous and proposed alterations and additions exceeds 50 percent of the current market value of the structure, then the structure must meet the standards of §9.22.04 & §9.22.05 of this City Code for new structures

depending upon whether the structure is in the Floodway or Flood Fringe, respectively.

d. If any nonconforming use is discontinued for six (6) consecutive months, any future use of the building premises shall conform to this Section. The assessor shall notify the Zoning Administrator in writing of instances of nonconforming uses which have been discontinued for a period of 12 months.

e. If any nonconforming use or structure is destroyed by any means, including floods, to an extent of 50 percent or more of its market value at the time of destruction, it shall not be reconstructed except in conformity with the provisions of this Section. The applicable provisions for establishing new uses or new structures in Sections 9.22.04, 9.22.05, 9.22.06 will apply depending upon whether the use or structure is in the Floodway, Flood Fringe or General Flood Plain District, respectively.

9.22.12 Penalties for Violation

Subdivision 1. Violation of the provisions of this Section or failure to comply with any of its requirements (including violations of conditions and safeguards established in connection with grants of variances or conditional uses) shall constitute a misdemeanor and shall be punishable as defined by law. Any person who violates this Section or fails to comply with any of its requirements shall upon conviction thereof be responsible for all City costs incurred in processing the case.

Subd. 2. Nothing herein contained shall prevent the City from taking such other lawful action as is necessary to prevent or remedy any violation. Such actions may include but are not limited to:

a. In responding to a suspected City Code violation, the Zoning Administrator and Local Government may utilize the full array of enforcement actions available to it including but not limited to prosecution and fines, injunctions, after the fact permits, orders for corrective measures or a request to the National Flood Insurance Program for denial of flood insurance availability to the guilty party. The community must act in good faith to enforce these official controls and to correct City Code violations to the extent possible so as not to jeopardize its eligibility in the National Flood Insurance Program.

b. When an City Code violation is either discovered by or brought to the attention of the Zoning Administrator, the Zoning Administrator shall immediately investigate the situation and document the nature and extent of the violation of the official control. As soon as is reasonably possible, this information will be submitted to the appropriate Department of Natural Resources' and Federal Emergency Management Agency Regional Office along with the Community's plan of action to correct the violation to the degree possible.

c. The Zoning Administrator shall notify the suspected party of the requirements of this Section and all other Official Controls and the nature and extent of the suspected violation of these controls. If the structure and/or use is under construction or development, the Zoning Administrator may order the construction or development immediately halted until a proper permit or approval is granted by the Community.

If the construction or development is already completed, then the Zoning Administrator may either (1) issue an order identifying the corrective actions that must be made within a specified time period to bring the use or structure into compliance with the official controls, or (2) notify the responsible party to apply for an after the fact permit/development approval within a specified period of time not to exceed 30 days.

d. If the responsible party does not appropriately respond to the Zoning Administrator within the specified period of time, each additional day that lapses shall constitute an additional violation of this City Code and shall be prosecuted accordingly. The Zoning Administrator shall also upon the lapse of the specified response period notify the landowner to restore the land to the condition which existed prior to the violation of this City Code.

9.22.13 Amendments. The flood plain designation on the Official Zoning Map shall not be removed from flood plain areas unless it can be shown that the designation is in error or that the area has been filled to or above the elevation of the regional flood and is contiguous to lands outside the flood plain. Special exceptions to this rule may be permitted by the Commissioner of Natural Resources if it is determined that, through other measures, lands are adequately protected for the intended use.

All amendments to this Section, including amendments to the Official Zoning Map, must be submitted to and approved by the Commissioner of Natural Resources prior to adoption. Changes in the Official Zoning Map must meet the Federal Emergency Management Agency's (FEMA) Technical Conditions and Criteria and must receive prior FEMA approval before adoption. The Commissioner of Natural Resources must be given 10 days written notice of all hearings to consider an amendment to this Section and said notice shall include a draft of the section amendment or technical study under consideration.

Historical Note

Established by Ord. #79-13, October 29, 1979.

Ord. #84-06 amended §9.22.02 Subd. 2, requiring the official zoning map to include "the revised FB-FW Panel 20 of 20 and the revised Floodway Data Table prepared by the Minnesota DNR, both dated July 23, 1984." Effective September 29, 1984.

Ord. #87-01 amended §9.22.02 Subd. 2, changing the required date of the revised Floodway Data Table from "July 23, 1984" to "March 31, 1987." Effective October 17, 1988.

Ord. #92-07 amended §9.22 to comply with Federal Flood Plain regulations. Effective July 13, 1992.

9.23 Scenic River

9.23.01 Policy and Authorization. A section for the controlling of bluffland and riverland development in order to protect and preserve the outstanding scenic, recreational, natural, historical, and scenic values of the Rum River in Ramsey, Minnesota, in a manner consistent with Minnesota Statutes, §104.31 - 104.40, Minnesota Regulations NR78-81, and the Management Plan for the Rum River (6 MCAR 1.2700 - 12720).

9.23.02 Title. This Section shall be known, cited, and referred to as the Scenic River Section; except as referred to herein, and where it shall be known as, "This Section".

9.23.03 Scope and Interpretation

Subdivision 1. The provisions of this Section shall apply within the designated Scenic River Land Use District of the Rum River, in accordance with the property descriptions contained in 6 MCAR 1.2700 - 1.2720.

Subd. 2. In their interpretation and application, the provisions of this Section shall be held to be minimum requirements, and shall not be deemed a limitation or repeal of any powers or rights granted by Minnesota Statutes.

Subd. 3. It is not intended by this Section to repeal, abrogate, or impair any existing easement, covenants, deed restrictions, or land use controls. Where this Section imposes greater restrictions, the provisions of this Section shall prevail.

Subd. 4. Compliance. The use of any land within the Scenic River Land Use District; the size and shape of lots; the use and location of structures on lots; the installation and maintenance of water supply and waste disposal facilities; the filling, grading, lagooning, or dredging of any river area; the cutting of vegetation or alteration of the natural topography within the district; and the subdivision of land shall be in full compliance with the terms of this Section and other applicable regulations. Permits from the Zoning Authority are required by this City Code, for the construction of buildings, public or private water supply and sewage treatment systems, the grading and filling of the natural topography, and erection of signs within the Scenic River Land Use District of the Rum River.

Subd. 5. Definitions. For the purpose of this Section, certain terms and words are defined as follows:

Agricultural Use - means the use of land for the production of food or fiber, their storage on the area, and/or the raising thereon of domestic pets and domestic farm animals.

Bluffline - means a line along the top of a slope connecting the points at which the slope of land becomes more than 12%. This applies to those slopes within the land use district which are beyond the setback provisions from the ordinary high water level.

Building Line - means that line measured across the width of the lot at the point where the main structure is placed in accordance with setback provisions.

~~**Campground** – means an area accessible by vehicle and containing campsites or camping spots for tents and trailer camping.~~

~~**Clear-cutting** – means the removal of an entire stand of vegetation.~~

~~**Commissioner** – means the Commissioner of Natural Resources.~~

~~**Conditional Use** – means a use of land which is permitted only when allowed by the Council after a public hearing, if certain conditions are met which eliminate or minimize the incompatibility with the other permitted uses of the district.~~

~~**Essential Services** – means underground or overhead gas, electrical, steam or water distribution systems, collection communication, supply, or disposal systems, including poles, wires, mains, drains, sewers, pipes, conduits, cables, fire alarm boxes, traffic signals, hydrants and other similar equipment and accessories in conjunction therewith, but not including buildings or transmission services.~~

~~**Forestry** – means the use and management, including logging, of a forest, woodland or plantation, and related research and educational activities, including the construction, alteration or maintenance of woodroads, skidways, landings, and fences.~~

~~**Hardship** – means as used in connection with a variance under this Section, the property in question cannot be put to a reasonable use under the conditions allowed by this Section. Economic considerations alone shall not constitute a hardship if any reasonable use for the property exists under the terms of this Section.~~

~~**Lot** – means a parcel of land designated by metes and bounds, registered land survey, auditors plot, or other accepted means and separated from other parcels or portions by said description for the purpose of sale, lease, or separation thereof. For the purposes of these regulations, a lot shall be considered to be an individual building site which shall be occupied by no more than one principal structure equipped with sanitary facilities.~~

~~**Mining Operation** – means the removal of stone, sand and gravel, coal, salt, iron, copper, nickel, petroleum or other material from the land for commercial, industrial, or governmental purposes.~~

~~**Nonconforming Use** – means any use of land established before the effective date of this Section which does not conform to the use restrictions of a particular zoning district. This should not be confused with substandard dimensions of a conforming use.~~

~~**Open Space Recreation Uses** – means recreation use particularly oriented to and utilizing the outdoor character of any area; including hiking and riding trails, primitive campsites, campgrounds, waysides, parks and recreational areas.~~

~~**Ordinary High Water Level** – means the boundary of public waters and wetlands, and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high water level shall be the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high water level shall be the operating elevation of the normal summer pool.~~

Planned Cluster Development – means a pattern of subdivision development which places dwelling units into compact groupings while providing a commonly owned or dedicated open space.

Primitive Campsites – means an area that consists of individual remote campsites accessible only by foot or water.

Screened – means when a structure is built or placed on a lot or visually inconspicuous as viewed from the river during the summer months. Visually inconspicuous means difficult to see or not readily noticeable in summer months as viewed from the river.

Selective Cutting – means the removal of single scattered trees.

Setback – means the minimum horizontal distance between a structure and the ordinary high water level, bluffline, or highway.

Sewage Treatment System – means any system for the collection, treatment and dispersion of sewage including but not limited to septic tanks, soil absorption systems and drain fields.

Single Family Dwelling – means a detached building containing one dwelling unit.

Structure – means any building, sign, or appurtenance thereto, except aerial or underground utility lines, such as sewer, electrical, telephone, telegraph, or gas lines, including towers, poles, and other supporting appurtenances, and fences used to control livestock or delineate boundaries.

Subdivision – means improved or unimproved land or lands which are divided for the purpose of ready sale or lease, or divided successively within a five year period for the purpose of sale or lease, into three or more lots or parcels of less than five acres each, contiguous in area and which are under common ownership or control.

Substandard Use – means any use within the Land Use District existing prior to the date of enactment of this Section which is permitted within the applicable land use district but does not meet the minimum lot area, length of water frontage, structure setbacks or other dimensional standards of the Section.

Variance – means any modification or variation of official controls where it is determined that by reason of exceptional circumstances the strict enforcement of the official controls would cause unnecessary hardship.

Wetland – shall be as defined in Minnesota Statute. §105.37, Subd. 15.

9.23.04 District Application

Subdivision 1. The Scenic River Land Use District of the Rum River, within the City, is hereby divided into two areas, in accordance with the Rum River Management Plan (6 MCAR – 1.2700 – 1.2720): The portion of the Scenic River Land Use District located within the 2000 Urban Area as defined and located in §9.20 shall be classified as an Urban Area; and the remainder of the Scenic River Land Use District within the City shall be classified as a Rural Area.

Subd. 2. The Scenic River Land Use District shall be shown on the Official Zoning Map, as shall the urban and rural area portions of the district contained therein.

Subd. 3. The provisions of Minnesota Regulations NR 78-84 shall apply within the Scenic River Land Use District, as specified in the Rum River Management Plan. Where the provisions of the City Code are in conflict with the Management Plan for the Rum River, the provisions of the Rum River Management Plan shall apply. Copies of Minnesota Regulations NR 78-84 and the Management Plan for the Rum River shall be kept on file in the office of the Administrator.

9.23.05 Uses

Subdivision 1. Urban Area. The Urban Area of the Scenic River Land Use District is hereby designated the Urban Area Overlay District.

a. Permitted Uses are all permitted uses allowed and regulated by the applicable zoning district underlying the Urban Area Overlay District, as indicated on the Official Zoning Map of Ramsey, Minnesota, except that public roads, utility crossings, and all private and commercial recreation uses shall be Conditional Uses.

b. Conditional Uses are all conditional uses and applicable attached conditions allowed and regulated by the applicable zoning district underlying the Urban Area Overlay District, as indicated on the Official Zoning Map of Ramsey, Minnesota.

Subd. 2. Rural Areas. The uses allowed within the Rural Area of the Rum River Scenic Land Use District shall be those prescribed for a Scenic River in Minnesota Regulation NR 79(b) as follows:

	Scenic River	
1.	Governmental campgrounds, subject to management plan specifications and the provisions of §9.23.11 subd. 7 *(Certification).	p*
2.	Private campgrounds, subject to management plan specifications and the provisions of §9.23.11 subd. 7 (Certification).	C **
3.	Public accesses, road access type with boat launching facilities subject to management plan specifications and the provisions of §9.23.11 subd. 7 (Certification).	p
4.	Public accesses, trail access type, subject to management plan specifications and the provisions of §9.23.11 subd. 7 (Certification).	p
5.	Temporary docks.	C
6.	Other governmental open space recreational uses, subject to management plan specifications and the provisions of §9.23.11 subd. 7 (Certification).	p
7.	Other private open space recreational uses, subject to management plan specifications and the provisions of §9.23.11 subd. 7 (Certification).	C

8	Agricultural uses.	P
9	Single family residential uses.	P
10	Forestry uses.	P
11	Essential services.	P
12	Sewage disposal systems.	P
13	Private roads and minor public streets.	P
14	Signs approved by federal, state, or local government which are necessary for public health and safety and signs indicating areas that are available or not available for public use.	P
15	Signs not visible from the river that are not specified in §9.23.03 subd. 5.	P
16	Governmental resource management for improving fish and wildlife habitat; wildlife management areas; nature areas; accessory roads.	P
17	Underground mining that does not involve surface excavation in the Land Use District.	C
18	Utility transmission power lines and pipelines, subject to the provisions of §9.23.10 Subd. 3.	C
19	Public roads, subject to the provisions in §9.23.10 subd. 4.	C

P* Means Permitted Use
C** Means Conditional Use

9.23.06 District Provisions

Subdivision 1. The following chart sets forth the minimum dimensional requirements of the Urban Area Overlay District:

		Un-Sewered Area	Sewered Areas Riparian Lots	Sewered Areas Non-Riparian Lots
1.	Lot size (in square feet)	43,560	20,000	12.150
2.	Lot width at building line and ordinary high water level	150'	90'	90'
3.	Building setback from ordinary high water level	100'	75'	75'
4.	Building setback from federal, state and county trunk highway right-of-ways	50'	50'	50'
5.	Building setback from other roads and public street right-of-ways	20'	20'	20'
6.	On-site sewage treatment system setback from ordinary high water level	75'	NA	NA
7.	Maximum structure height*	35'	35'	35'
8.	Maximum total area of all impervious surfaces on each lot**	30%	30%	30%

9.	Minimum road parking area setback from ordinary high water level	***50'	50'	50'
10	Controlled vegetative cutting area measured from the ordinary high water level	100'	75'	75'

* Does not apply to buildings used primarily for agricultural purposes.
** Includes all structures, surfaced roads, parking lots, and other impervious areas.
*** Where practical and feasible, all roads and parking areas shall meet the setback requirements established for structures in §9.23.06 Subd. 1.

Subd. 2. The following chart sets forth the minimum dimensional requirements for the rural areas of the Rum River Scenic Land Use District.

1.	Minimum lot size above ordinary high water level	
	Riparian lots	4 acres
	Non-Riparian lots	21/2 acres
2.	Lot width at building line	300 feet
3.	Lot width at ordinary high water level	300 feet
4.	Building setback from ordinary high water level	150 feet
5.	Building setback from bluff line	30 feet
6.	On-site sewage treatment system setback from ordinary high water level	100 feet
7.	Maximum structure height*	35 feet
8.	Controlled vegetative cutting area (see §9.0710.1)	
	Setback from ordinary high water level	150 feet
	Setback from bluff line	30 feet

*This requirement shall not apply to buildings used primarily for agricultural uses.

Subd. 3. Trott Brook is a designated tributary of the Rum River and the following setbacks shall also apply:

1. Building setback from the OHW level of Trott Brook – 100 feet.

2. On-site sewage treatment system setback from OHW level of Trott Brook – 75 feet.

3. Controlled vegetative cutting area setback from ordinary high water level of Trott Brook – 100 feet (See §9.23.10 Subd. 1).

9.23.07 Sanitary Provisions – Sewage Disposal and Water Supply

Subdivision 1. Any premises intended for human occupancy must provide for an adequate method of sewage treatment. Public or municipal collection and treatment facilities must be used where available and feasible. Where public or municipal facilities are not available, all on-site individual sewer treatment systems shall conform to the minimum standards and administration procedures set forth in other applicable Ramsey regulations and the minimum standards of the Minnesota Pollution Control Agency (6 MCAR 4.8040 Individual Sewage Treatment Systems Standards) and §9.23.06 of this City Code.

Subd. 2. No person, firm, or corporation shall install, alter, repair, or extend any individual sewer disposal system or private well without first obtaining a permit for such action from the Zoning Authority for the specific installation, alteration, repair, or extension. Prior to issuance of any such permit, the Zoning Authority may require that soil boring tests be done on the proposed site to determine whether or not the site is capable of supporting a conforming sewage treatment system.

Subd. 3. Any public or private supply of water for domestic purposes must conform to Minnesota Department of Health Standards for water quality and the administrative procedures of other applicable local ordinances.

9.23.08 Placement of Structures

1. Structures proposed within a flood plain area shall be consistent with all flood plain management regulations of Ramsey.

2. No structure shall be placed on any slope greater than 12% (12 feet vertical rise in 100 feet horizontal distance) unless such structures can be screened. sewage disposal facilities can be installed so as to comply with the sanitary provisions of §9.23.07, and the permit applicant can prove to the Zoning Authority that any potential erosion or sedimentation problems related to locating such a structure either do not exist, or that adequate measures will be taken to prevent such problems through special construction methods.

9.23.09 Subdivision of Land

Subdivision 1. No land shall be subdivided which is determined by the City, or the Commissioner of Natural Resources, to be unsuitable by reason of flooding, inadequate drainage, soil and rock formations with severe limitations for development, severe erosion potential, unfavorable topography, inadequate water supply or sewage treatment capabilities or any other feature likely to be harmful to the health, safety, or welfare of the future residents of the proposed subdivision or the community. Soil percolation rate tests and soil borings shall be required on each proposed subdivision within the Rum Scenic River Land Use District, to establish the suitability of the land for development. Such testing is required before any final plat may be approved, but may be waived by the Zoning Administrator when adequate data is already available.

Subd. 2. Planned Unit or Cluster Developments may be allowed in the Scenic River Land Use District if preliminary plans are first approved by the Commissioner of Natural Resources and the applicable provisions of Minnesota Regulations NR 78-84 pertaining to such development are satisfied, and the Ramsey City Code is satisfied.

9.23.10 Landscape Alterations

Subdivision 1. Vegetative Cutting

a. The vegetative cutting provisions of §9.23.10 shall apply to those areas as specified in §9.23.06 of this Chapter.

b. General provisions within designated setback areas:

1. Clear cutting, except for any authorized public services such as roads and utilities, shall not be permitted.

2. Selective cutting of trees in excess of four inches in diameter at breast heights shall be permitted providing cutting is spaced in several cutting operations and a continuous cover is maintained.

3. The cutting provisions of paragraphs 1 and 2 above shall not be deemed to prevent:

(a) The removal of diseased or insect infested trees, or of rotten or damaged trees that present safety hazards.

(b) Pruning understory vegetation, shrubs' plants, brushes, grasses, or from harvesting crops, or cutting suppressed trees or trees less than four inches in diameter at breast height.

c. **Clear Cutting**. Clear cutting anywhere within the Scenic River Land Use District of the Rum River is subject to the following standards and criteria:

1. Clear cutting shall not be used as a cutting method where soil, slope, or other watershed conditions are determined by the Zoning Authority to be fragile and subject to severe erosion and/or sedimentation.

2. Clear cutting shall be conducted only where clear-cut blocks, patches or strips are, in all cases, shaped and blended with the natural terrain.

3. The size of clear-cut blocks, patches or strips shall be kept at the minimum necessary.

4. Where feasible, all clear cuts shall be conducted between September 15 and May 15. If natural regeneration will not result in adequate vegetative cover, areas in which clean cutting is conducted shall be replanted to prevent erosion and to maintain the aesthetic quality of the area. Where feasible, replanting shall be performed in the same spring or the following spring.

Subd. 2. Grading, Filling, Alterations of the Bed of Public Waters

a. Any grading and filling work done within the Scenic River Land Use District of this Section shall require a permit and shall comply with the following:

1. Grading and filling of the natural topography which is not accessory to a permitted or conditional use shall not be permitted in the Scenic River Land Use District.

2. Grading and filling of the natural topography which is accessory to a permitted or conditional use shall not be conducted without a grading and filling permit from the Zoning Authority. A grading and filling permit may be issued only if the conditions of the following paragraphs 3 and 4 are properly satisfied.

3. Grading and filling of the natural topography which is accessory to a permitted or conditional use shall be performed in a manner which minimizes earthmoving, erosion, tree clearing, and the destruction of natural amenities.

4. Grading and filling in of the natural topography shall also meet the following standards:

(a) The smallest amount of bare ground is exposed for as short a time as feasible.

(b) Temporary ground cover such as mulch is used and permanent ground cover such as sod, is planted.

(c) Methods to prevent erosion and to trap sediment are employed.

(d) Fill is stabilized to accepted engineering standards.

b. Excavation of material from, or filling in a Wild, Scenic or Recreational River, or construction of any permanent structures of navigational obstructions therein is prohibited unless authorized by a permit from the Commissioner of DNR pursuant to Minnesota Statutes §105.42.

c. Drainage or filling in of wetlands is not allowed within the Scenic River Land Use District designated by this Section.

Subd. 3. Utility Transmission Lines. All utility transmission crossings of land within the Scenic River Land Use District designated by this Section shall require a conditional use permit. The construction of such transmission services shall be subject to the standards and criteria of Minnesota

Regulations NR 79(i) (2). No conditional use permit shall be required for high voltage transmission lines under control of the Environmental Quality Council pursuant to Minnesota Statutes, §116 C 61.

Subd. 4. Public Roads. In addition to such permits as may be required by Minnesota Statutes §105.42. a conditional use permit shall be required for any construction or reconstruction of new public roads within the Scenic River Land Use District of this Section. Such construction or reconstruction shall be subject to the standards and criteria of Minnesota Regulations NR 79 (j) (2). A conditional use permit is not required for minor public streets which are streets intended to serve primarily as an access to abutting properties. Public roads include township, county, and municipal roads and highways which serve or are designed to serve flows of traffic between communities or other traffic generating areas.

9.23.11 Administration

Subdivision 1. Organization Provisions

a. The provisions of this Section shall be administered by the Ramsey Zoning Authority.

b. The Board of Adjustment of Ramsey shall act upon all questions as they arise in the administration of this Section, to hear and decide appeals; and to review any order, requirements, decisions or determination made by the Zoning Authority, who is charged with enforcing this Section as provided by Minnesota Statutes.

c. Permit fees and inspection fees as may be established by resolution of Ramsey shall be collected by the zoning Authority for deposit with Ramsey and credited to the appropriate general; fund.

Subd. 2. Substandard Lots and Uses, Nonconforming Uses

a. **Substandard Lots**

1. Lots of record in the office of the County Recorder on the effective day of enactment of this Section which do not meet the dimensional requirements of this City Code shall be allowed as building sites, provided: such use is permitted in the land use district; the lot was in separate ownership from abutting lands on the date of enactment of this City Code; and all sanitary and dimensional requirements are complied with to the greatest extent practicable.

2. If in a group of two or more contiguous lots under single ownership any individual lot does not meet the lot width requirements of the City Code, such individual lot cannot be considered as a separate parcel of land for purposes of sale or development, but must be combined with adjacent lots under the same ownership so that the combination of lots will equal one or more parcels of land each meeting the lot width requirements of the City Code, except that such lots which meet or exceed 60 % or more of the lot width standards of these regulations may be considered as a separate parcel of land for the purpose

of sale or development, if on-site sewage disposal systems can be installed so as to comply with these regulations.

b. **Nonconforming Uses**

1. **Nonconforming Uses**. Uses which are prohibited by this Section but which are in existence prior to the effective date of this Section shall be nonconforming uses. Such uses shall not be intensified, enlarged, or expanded beyond the permitted or delineated boundaries of the use or activity as stipulated in most current permit issued prior to the adoption of this Section.

2. **Nonconforming Sanitary Systems**. All sanitary facilities inconsistent with the performance standards of other applicable local ordinances and the minimum standards of MPCA shall be brought into conformity or discontinued within five years of the date of enactment of this or other applicable ordinances.

c. **Substandard Uses**. All uses in existence prior to the effective date of enactment or amendment of this Section which meet the allowable use criteria within the newly established Land Use District provisions of this Section, but do not meet the minimum lot area, setback, or other dimensional requirements of this Section are substandard uses. All substandard uses, except for substandard signs, shall be allowed to continue subject to the following conditions and exceptions:

1. Any structural alteration or addition to a substandard use which will increase the substandard dimensions shall not be allowed.

2. Substandard signs shall be gradually eliminated over a period of time not to exceed five years from the date of enactment of this Section.

3. Where a setback pattern from the ordinary high water level already has been established on both sides of a proposed building site, the setback of the proposed structure may be allowed to conform to that pattern. This provision shall only apply to lots which do not meet the minimum lot width requirement of §9.23.06 of this City Code.

Subd. 3. Variances

a. The grant of a variance requires the presence of the following conditions:

1. The strict enforcement of the land use controls will result in unnecessary hardship.

2. Granting of the variance is not contrary to the purpose and intent of the zoning provisions herein established by these standards and criteria, and is consistent with the Management Plan for the Rum River.

3. There are exceptional circumstances unique to the subject property which were not created by the landowner.

4. Granting of the variance will not allow any use which is neither a permitted or conditional use in the land use district in which the subject property is located.

5. Granting of the variance will not alter the essential character of the locality as established by the Management Plan for the Rum River.

b. All variances to the requirements of this Section must be certified in accordance with §9.23.11 Subd. 7 of the City Code.

Subd. 4. Plats

a. Copies of all plats within the boundaries of the Scenic River Land Use District shall be forwarded to the commissioner within ten (1O) days of final approval by Ramsey.

b. Inconsistent Plats: Approval of a plat which is inconsistent with this Section is permissible only if the detrimental impact of the inconsistency is more than overcome by other protective characteristics of the proposal.

c. All inconsistent plats approved by the Council must be certified in accordance with §9.23.11 Subd. 7 of this Chapter.

Subd. 5. Amendments

a. This Section may be amended whenever the public necessity and the general welfare require such amendments by the procedure specified in this Section. Amendments to this Section must be certified by the Commissioner as specified in §9.23.11 Subd. 7 of the City Code.

b. Requests for amendments of this Section shall be initiated by a petition of the owner or owners of the actual property; or by action of the Council.

c. An application for an amendment shall be filed with the zoning Authority.

d. Upon receipt in proper form of the application and other requested materials' the Planning Commission shall conduct a public hearing in the manner prescribed in §9.03 of this Chapter.

e. Following the public hearing, the Planning Agency shall make a report of its recommendations on the proposed amendment and shall file a copy with the Council within 60 days after the hearing for the City Council's action. Certification from the Commissioner must be obtained as specified in §9.23.11 Subd. 7 before the proposed amendment becomes effective.

f. To defray the administrative costs of processing requests for an amendment to this Section, a fee not exceeding administrative costs shall be paid by the petitioners. Such fee shall be determined by the Council.

Subd. 6. Conditional Use Permit Review

a. A copy of all notices of any public hearing, or where a public hearing is not required, a copy of the application to consider issuance of a conditional use permit shall be sent so as to be received by the Commissioner at least 30 days prior to such hearings or meetings to consider issuance of a conditional use permit. A copy of the decision shall be forwarded to the Commissioner within ten days of such action.

b. Conditional use permits relating to private or commercial recreational development must be certified in accordance with §9.23.11 Subd. 7.

Subd. 7. Certification

a. Certain land use decisions which directly affect the use of land within the Scenic River Land Use District and involve any of the following actions must be certified by the Commissioner as specified in §9.23.11 Subd. 7b.

1. Adopting or amending an ordinance regulating the use of land including rezoning of particular tracts of the land.

2. Granting a variance from a provision of this Section which related to the zoning dimension provision .of §9.23.06 of the City Code and any other zoning dimension provisions established in the Management Plan for the Rum River.

3. Approving a plat which is inconsistent with the local land use.

4. Granting a conditional use permit for a private or commercial recreational development.

b. **Certification Process**

1. A copy of all notices of any public hearings, or where a public hearing is not required, a copy of the application to consider zoning amendments, variances, or inconsistent plats under local code shall be sent so as to be received by the Commissioner at least 30 days prior to such hearings or meetings to consider such actions. The notice of application shall include a copy of the proposed ordinances or amendment, or a copy of the proposed inconsistent plat, or a description of the requested variance, or a copy of the conditional use permit application, where applicable.

2. Ramsey shall notify the Commissioner of its final decision on the proposed action within ten days of the decision.

3. The action becomes effective when and only when either:

(a) The final decision taken by Ramsey has previously received certification of approval from the Commissioner, or

(b) Ramsey received certification of approval after its final decision, or

(c) Thirty days have elapsed from the day the Commissioner received notice of the final decision, and Ramsey has received from the Commissioner neither certification of approval nor notice of non-approval, or

(d) The Commissioner certifies approval within 30 days after conducting a public hearing.

4. In case the Commissioner gives notice of non-approval of an ordinance, variance or inconsistent plat, either the applicant or the Administrator may, within 30 days of said notice, file with the Commissioner a demand for hearing. If the demand for hearing is not made within 30 days, the notice of non-approval becomes final.

(a) The hearing will be held in an appropriate local community within 60 days of the demand and after at least two weeks published notice.

(b) The hearing will be conducted in accordance with Minnesota Statutes 105.44, Subdivision 5 and 6 (1971) as amended.

(c) The Commissioner shall either certify approval or disapproval of the proposed action within 30 days of the hearing.

5. The following recreational uses shall require certification approval by the Commissioner:

(a) Governmental campgrounds

(b) Private campgrounds

(c) Public accesses, road access type with boat launching facilities

(d) Public accesses, trail access type

(e) Temporary docks

(f) Other governmental open space recreational uses

Subd. 8. Enforcement. It is declared unlawful for any person to violate any of the terms and provisions of this Section. Violation thereof shall be a misdemeanor. Each day that a violation is permitted to exist shall constitute a separate offense.

1. In the event of a violation or a threatened violation of this Section, Ramsey or the Commissioner of Natural Resources, in addition to other remedies, may institute

appropriate actions or proceedings to prevent, restrain, or abate such violations or threatened violations.

2. Any taxpayer or taxpayers of Ramsey may institute mandamas proceedings in the District Court to compel specific performance by the proper official or officials of any duty required by this Section.

Historical Note

Established by Ord. #81-04, August 18, 1981.

Ord. #81-07 amended §9.23.06 Subd. 2, changing lot size requirements. Also amended §9.23.06 Subd. 1, adding the footnote ***. Effective November 21, 1981.

9.26 Wetland Protection.

9.26.01 Adoption of State Law by Reference. This Section incorporates by reference the Wetlands Conservation Act of 1991 (WCA) which act has been codified as MN Statute Sections 103G.222 .2373 and as amended from time to time. Any activities exempted from the provisions of the WCA are also exempted from the requirements of this Section, insofar as they relate to the WCA (Minn. Rules 8420.0122). All wetlands, including those governed by the Department of Natural Resources, are covered by the other provisions of this Section.

9.26.02 City Findings.

Subd. 1. Findings. The City finds that:

a. Wetlands are a defining character of its natural heritage worthy of its protection and preservation. Wetlands serve to maintain water quality by filtering water that is discharged into ground water aquifers and by retaining inorganic sediments, toxicants, and nutrients. They also retain and reduce the discharge of phosphorus and transform nutrients from their inorganic to organic forms, thereby, protecting downstream water bodies from eutrophication and contamination. Wetlands also store runoff and reduce the velocity of and magnitude of peak flood stages. In addition, some wetlands receive groundwater discharge. These wetlands tend to support more stable biological communities since their water temperatures and water levels tend to be more stable.

b. Wetland vegetation also reduces the energy of waves, currents, and other erosive forces and serves to prevent the erosion of shoreline areas. In addition, aquatic vegetation provides food, shelter, and special habitat for wildlife. All of these wetland characteristics provide valuable education and recreation resources.

c. Wetlands vary significantly in the degree that they have been altered. Wetlands within the City exhibit great variations in their floral diversity, quality of wildlife and fishery habitat, degree of fluctuation in response to storms, the extent to which their shorelines have been altered or eroded, and their relative value in protecting water quality. Therefore, the City has determined that it is necessary and beneficial to classify wetlands based upon their functions and values for purposes of establishing relative levels of protection.

d. A substantial amount of wetland degradation results from sedimentation and nutrient loading related to construction projects. Therefore, the City finds it necessary to require extraordinary measures to prevent such construction-related degradation.

e. That it is necessary to regulate the use of lands surrounding wetlands. Based on currently available scientific literature, buffer strips are beneficial to maintaining the health of wetlands. These strips of land surrounding wetlands protect their shorelines from erosion, while serving to filter sediment, chemicals and other nutrients before storm water discharges into the wetland. Buffer strips are also beneficial in providing habitat for wildlife.

f. It is in the best interest of the general health and welfare of the City to achieve no net loss of wetlands within the community. It is the intent of this Section to avoid or minimize the alteration and destruction of wetlands where possible. When wetlands are altered or destroyed, mitigation must be provided to recreate the functions and values of the lost wetland.

g. Vegetative buffer strips ameliorate and filter runoff and discharge into wetlands. Wetlands are instrumental in maintaining and improving both water quantity and quality for aquifer recharge. In addition to the mechanical and physical function of impeding sediment run off and transport, buffer strip and wetland vegetation serve to metabolize or sequester nutrients as well as contaminants and sediment. The ability to support microbial life, macro invertebrates, and common wildlife is a proximate indicator of the value and quality ('health') of the wetlands and their associated buffer region. In turn, the water quality desired for human use and human health is the functional result of biological processes in wetlands and associated buffers.

9.26.03 Purpose and Implementation.

Subd. 1. Purpose. Through the adoption and enforcement of this Section, the City shall promote the general health, safety, and welfare of its residents by both conserving and protecting wetlands and requiring sound management practices and mitigation as provided for in the WCA when development occurs in the vicinity of wetlands. Through the implementation of this Section, the City seeks to accomplish the following purposes:

a. Satisfy the requirements of the WCA as it may be amended and, thereby achieve no net loss of wetlands within the City;

b. Preserve the natural character of the landscape through the maintenance of wetland ecosystems;

c. Preserve scenic viewsheds;

d. Establish greenway corridors in the City when combined with appropriate upland features;

e. Protect water quality by maintaining the ability of wetlands to recharge ground water and receive the discharge of ground water, to retain sediment and toxicants and filter and strip nutrients from surface water runoff before it discharges into community lakes and streams, thus minimizing the contamination and eutrophication of these water features;

f. Provide wildlife habitat and thereby support the maintenance of diversity of both plant and animal species within the City; and

g. Assure the general health, safety, and welfare of City residents by preservation and conservation of wetlands and sound management of development by:

1. Conducting an inventory of all natural and constructed wetlands within the City;

2. Developing a system of management classifications for wetlands within the City based on wetland functions and values, through the application of an assessment method accepted under the WCA;

3. Preparing and maintaining a comprehensive set of official maps to be reviewed and adopted by the City Council, identifying the location and management classifications of all inventoried wetlands within the City;

4. Establishing wetland regulations that are coordinated with flood plain, shoreland protection regulations and stormwater management;

5. Requiring sound management practices to protect, maintain, and improve the quality of wetlands within the community;

6. Adhering to standards established in the WCA as permitted and enforced by the Lower Rum River Water Management Organization (LRRWMO), which is the Local Governing Unit (LGU);

7. Obtaining protective easements over or acquire fee title to wetlands as appropriate; and,

8. Developing and maintaining a program to educate the public about the numerous benefits and features that wetlands provide and the adverse effects of improperly managed urban development on wetlands.

9.26.04 General Provisions.

Subd. 1. Identification and Delineation of Wetlands.

a. This Section shall apply to all land containing wetlands and land within the setback and buffer areas as defined herein. Wetlands shall be subject to the requirements established herein, as well as restrictions and requirements established by other applicable Federal, State, and Local regulations. These wetland protection regulations shall not be construed to allow anything otherwise prohibited in the zoning district where the wetland area is located.

b. A wetland is land that meets the definition of "wetlands" set forth in Section 9.02 of this Chapter. It is the responsibility of an applicant to delineate the wetland boundary or to determine that no wetland exists on a subject property. All delineations must be approved by the LGU. Wetland delineations supplied by applicants shall be certified by a qualified wetland delineator. Wetland delineators must satisfy any certification requirements that may be established by the U.S. Army Corps of Engineers or the Minnesota Board of Water and Soil Resources.

c. Wetlands have been or will be identified and the management classification of the wetland, as established by the municipal wetland management classification map adopted by the City Council, shall be prima facie evidence of the location and management classification of a wetland. The municipal wetland management classification map shall be developed and maintained by the City's Community Development Department and is open to inspection by the public.

The absence of a wetland on the municipal wetland management classification map or the National Wetland Inventory does not represent a definitive determination as to whether a wetland covered by this Section is or is not present. Wetlands that are identified during site specific delineation activities but do not appear on the municipal wetland management classification map are still subject to the provisions of this Section. It is the applicant's responsibility to supply detailed information to determine the management classification of a wetland that does not appear on the municipal wetland management classification map. The municipal wetland management classification map will subsequently be amended to reflect this information.

d. The four wetland management classifications established in this Section are Preserve, Manage 1, Manage 2 and Manage 3 wetlands, defined as follows:

1. Preserve wetlands are pristine or near-pristine wetlands that typically are rated "exceptional" for vegetative diversity/integrity and wildlife habitat value. The existing functions and values of such wetlands are to be maintained without change and strict impact avoidance will typically be required. Active management may be necessary to protect unique resources within such wetlands, including high quality native plant communities and, in some cases, state-listed threatened, endangered and/or special concern plant species.

2. Manage 1 wetlands are not pristine or near-pristine but exhibit minimal diminution of functions and values. Manage 1 wetlands are typically rated "high" for vegetative diversity/integrity and wildlife habitat value. The functions and values of Manage 1 wetlands are to be maintained without degradation and adverse impacts avoided whenever possible.

3. Manage 2 wetlands exhibit evidence of substantial degradation but have the potential to be restored to Manage 1 status. Manage 2 wetlands are typically rated "medium" for vegetative diversity/integrity and wildlife habitat value. Impacts to the functions and values may generally be replaced following the proper application of "sequencing".

4. Manage 3 wetlands are highly degraded and exhibit minimal wetland functions and values. Such wetlands are typically rated "low" for vegetative diversity/integrity and wildlife habitat value. Sequencing flexibility would often apply to such wetlands.

e. "Incidental" wetlands that are exempt from WCA regulation under Minn. Rules 8420.0122 are not subject to the provisions of this Section.

f. Temporary impacts from utility installation or maintenance that are exempt from WCA regulation under Minnesota Rules 8420.0122 are not subject to the provisions of this Section.

g. If an applicant disputes the management classification of a wetland, the applicant shall have the burden to supply detailed information for review supporting the applicant's assertion, including but not limited to, topographic, hydrologic, floristic and/or soil data deemed necessary to determine its management classification. If the City is convinced by evidence submitted by an applicant that a wetland on the municipal wetland management classification map has been incorrectly mapped or has been misclassified, the map will be changed to reflect the necessary corrections. All such corrections are subject to City Council approval.

h. If an applicant questions the boundary of a wetland, the jurisdictional status of a wetland, or whether a wetland exists, they shall have the burden to supply detailed information, for review by the LGU, supporting the applicant's assertion, including but not limited to, topographic, hydrologic, floristic and/or soil data deemed necessary.

9.26.05 General Standards. The following standards apply to all lands within and/or abutting a wetland:

Subd. 1. Septic and Soil Absorption Systems. Septic and soil absorption systems must be setback a minimum of seventy-five (75) feet from the City approved boundary of the wetland.

Subd. 2. Best Management Practices. The MPCA's Best Management Practices shall be followed for the construction of wetland protection methods and related improvements.

9.26.06 Wetland Buffer Strips – When Required.

Subd. 1. Wetland Buffer Strip. A wetland buffer strip shall be maintained abutting all wetlands on new lots of record created after November 14, 2005. Lots of record in existence on November 14, 2005 are not subject to the buffer requirements set forth in this Section. At the time a final plat is to be recorded, the developer shall also record a notice of the wetland buffer requirement and prohibited activities

against the title to the lot with the office of the Anoka County Recorder. Before the City issues a building permit for a lot with a required wetland buffer, the developer shall install the wetland buffer monumentation required under Section 9.26.08.

Subd. 2. Wetland Buffer Compliance. Subject properties must comply with the wetland buffer section setbacks from all wetlands including those wetlands not located or only partially located on the subject property.

Subd. 3. Adjacent Roadways. For roadways that must be aligned either adjacent to or across wetlands and are subject to WCA replacement requirements, additional wetland filling to create a buffer strip shall not be required. All other roadways and trails shall meet the buffer standards established in this Section.

Subd. 4. Development Grading. For buffers being created during development grading, if the slope subsequent to final grading is greater than twelve (12) percent, then the maximum buffer width for the wetland type is applicable to the area having such slopes. The use of a meandering buffer strip is encouraged to help maintain a natural characteristic but average buffer widths must be adhered to. The widest portion of the buffer should be in areas where surface drainage to the wetland will likely be concentrated. Construction grading should be kept mindful of the areas where surface drainage to the wetland will likely be concentrated and graded appropriately.

Subd. 5. Voluntary Buffer Creation. Wetland buffer strips not required by this Section may be voluntarily created in conformance with the requirements of this Section concurrent with approval of a site plan, or in the absence of a site plan, upon approval of an administrative permit.

Subd. 6. Wetland Buffer Widths and Setbacks. Wetland Buffer widths and setbacks for the various Wetland Management Classifications are as shown on the following table:

Management Classification	**Preserve**	**Manage 1**	**Manage 2**	**Manage 3**
Wetland Buffer Strip Min. Width	25’	20’	15’	5’
Wetland Buffer Strip Max. Width*	50’	30’	25’	15’
Wetland Buffer Strip Average Width	30’	25’	20’	10’
Min. Structure Setback from Buffer Strip**	15’	15’	15’	15’

* Buffer widths in excess of the listed maximums shall not be used in calculating the average buffer width.

** These setbacks shall take precedence over other setbacks required in this Chapter.

9.26.07 Variances

Subd. 1. Variance Requirements. A variance will be required to install and/or maintain a narrower wetland buffer strip than required by this section. The variance shall be processed in accordance with the procedures established in Section 9.03.07 of Chapter 9. Criteria governing consideration of a

variance request to reduce the minimum wetland buffer strip width requirements shall include, but not be limited, to the following:

a. Whether the variance will have the effect of allowing a use that is prohibited in the applicable zoning district.

b. Whether the variance will impair established property values within the neighborhood.

c. Whether the variance will violate the intent and purpose of the Comprehensive Plan.

d. Whether the variance requested is the minimum variance necessary to accomplish the intended purpose of the applicant.

Subd. 2. Alternative Standards. The City may require alternative buffer width and maintenance standards as a condition of variance approval, based on an assessment of the following:

a. Size of the parcel

b. Topography and hydrology of the parcel.

c. Existing roads and utilities.

d. Percentage of the parcel impacted by wetlands.

e. Configuration of wetlands on the parcel.

f. Quality of the affected wetland(s).

9.26.08 Monument Required. A permanent wetland buffer monument shall be installed where wetland boundaries intersect lot lines and where needed to accurately indicate the contour of the buffer, with a maximum spacing of two hundred (200) feet of wetland buffer edge. The monument shall consist of a post and a wetland buffer strip sign. The post shall be of a material approved by the Zoning Administrator with a maximum size of four (4) inches by four (4) inches (4" x 4"). The sign shall be mounted flush with the top of the post. The post shall be mounted to a height of a minimum of four (4) feet above grade set at least forty-two (42) inches in the ground. The bottom of the post must be fitted with an anchor attachment that would expand upon attempted removal or with a concrete footing. Monuments may be waived in unusual circumstances where the City determines that such signs would not serve a practical purpose.

9.26.09 Buffer Strip Vegetation Standards.

Subd. 1. Where acceptable natural vegetation exists in buffer strip areas, the retention of such vegetation in an undisturbed state is preferred. A buffer strip has acceptable natural vegetation if it:

a. Has a continuous, dense layer of perennial grasses that have been uncultivated or unbroken for at least ten (10) consecutive years, or

b. Has an overstory of trees and/or shrubs with at least eighty (80) percent canopy closure that have been uncultivated or unbroken for at least ten (10) consecutive years, or

c. Contains a mixture of the plant communities described in (a) and (b) above that have been uncultivated or unbroken for at least ten (10) consecutive years.

Subd. 2. Notwithstanding the above performance standards, the City may determine existing buffer vegetation to be unacceptable if it is composed of undesirable plant species including, but not limited to, common buckthorn, purple loosestrife, leafy spurge, noxious weeds or any other plants included in the DNR's Minnesota Invasive Non-Native Terrestrial Plants list.

Subd. 3. Where buffer areas or a portion thereof, are not vegetated or have been cultivated or otherwise disturbed within ten (10) years of the permit application, such areas shall be re-planted and maintained according to the City's standard seeding specifications available from the City's Community Development Department.

Subd. 4. Responsibilities of Applicant for Subdivision. Establishment and initial maintenance of buffer strip vegetation for the first two (2) years is the responsibility of the subdivision applicant. During the first two (2) years, buffer vegetation that does not survive must be re-planted by the subdivision applicant. After the first two (2) years, if the condition of the buffer area changes through natural processes not caused by human activity, the subdivision applicant shall not be required to reestablish the buffer area to meet the standards contained in this Section.

Subd. 5. Responsibilities of Subsequent Lot Purchasers. Subsequent purchasers of lots subject to this Section are not required to engage in active maintenance of buffers. However, it remains the responsibility of lot purchasers to refrain from activities prohibited within wetland buffers as enunciated in this subdivision and in the required notice recorded against the lot title. Some otherwise prohibited activities, such as mowing or herbicide applications, may be allowed as elements of an active maintenance plan approved by City staff. The following activities are prohibited within wetland buffers unless expressly allowed under a City-approved buffer management regimen:

a. Mowing;

b. Cutting of woody vegetation, with the exception of invasive non-native trees and shrubs, shall be prohibited. A list of invasive non-native trees and shrubs is available from the City;

c. Filling, grading or excavating;

d. Disposal of grass clippings, tree branches or other vegetative waste;

e. Placement of structures;

f. Application of herbicides, except as applied in spot treatments to control or eradicate prohibited, restricted or secondary noxious weeds as defined in Minn. Rules 1505.0730 to 1505.750. A list of these species is available from the City.

9.26.10 Encroachment in Buffer Areas. Storm water ponds may encroach into required wetland

buffer areas, provided it doesn't reduce the buffer's ability to treat storm water and that the amount of buffer width encroached upon does not exceed 50 percent of the total area required for such ponding.

Historical Note

Ord. #05-27 added §9.26 "Wetland Protection". Effective November 14, 2005.

Recommended Revisions to the Current Storm Water Pollution Control Ordinance

Ordinance No.: 06-32
Ramsey City Code: 9.27

9.27.05 General Policy on Storm Water Runoff Rates

For Rivers and streams Post development storm water discharge rates, leaving the fully developed site must not increase over exceed seventy five percent (75%) of the predevelopment ten (10) year and one hundred (100) year peak discharge rates, based on the last ten years of how the land was used. Also accelerated downstream channel erosion must not occur as a result of the proposed activity. For wetlands, volume control is more important.

9.27.11 Permanent Storm Water Pollution Controls

Subdivision 1. The applicant shall install, construct, or pay the city fees for all storm water management facilities necessary to manage increased runoff, so that the discharge rates from storm water treatment basins for the predevelopment ten (10) year, and one hundred (100) year peak storm discharge rates are not increased do not exceed seventy-five percent (75%) of the predevelopment ten (10) year and one hundred (100) year peak discharge rates. The predevelopment rates shall be based on the last ten (10) years of how the land was used. Accelerated channel erosion must not occur as a result of the proposed land disturbing or development activity. An applicant may also make an in-kind or a monetary contribution to the development and maintenance of community storm water management facilities designed to serve multiple land disturbing and development activities undertaken by one or more persons, including the applicant.

Subdivision 2. All calculations and information used in determining these peak storm discharge rates shall be submitted along with the storm water pollution control plan.

Pre- and Post development discharge rates shall be generated using SCS TR 20 or SCS TR 55 methodology using a 24-hour SCS type II rainfall distribution. The 10-year, 24-hour rainfall depth shall be 4.1 inches of total precipitation, and the 100-year, 24-hour rainfall depth shall be 5.1 inches of total

~~precipitation.~~

~~The SCS runoff curve number (CN) for the existing undeveloped areas and the minimum CN's for developed conditions shall be limited to that shown in the following table:~~

~~Maximum existing ..... CN = 55~~

~~Minimum residential development ..... CN = 65~~

~~Minimum commercial development ..... CN = 90~~

~~Minimum industrial development ..... CN = 90~~

~~These maxima and minima are general in nature and typically apply to previously undeveloped land. There will undoubtedly be cases where the existing land exists as pasture, wetlands, ungrazed meadows, etc. which will require appropriate curve number adjustment in accordance with standard SCS TR-20 and TR-55 methodology.~~

~~The post development runoff rates shall be controlled using infiltration basins, rain gardens or wet retention basins.~~

~~Wet retention basins shall be designed with dead storage volumes in accordance with the following (Wm. Walker Jr., 1987):~~

~~Given the following definitions:~~

~~Aw = Total watershed area in acres.~~

~~Fi = Ratio of impervious area to total watershed area.~~

~~CN = Area weighted mean SCS curve number for the pervious portion of the watershed.~~

~~Calculate the maximum soil retention as follows:~~

$$S = (1000/CN) - 10$$

~~Calculate the runoff for a 2 year storm as follows:~~

$$R = \frac{(2.5 - 0.2S)^2}{(2.5 + 0.8S)} - 2.5 * Fi + (1 - Fi)$$

~~Calculate Permanent Pool Volume, V in acre feet as follows:~~

$$V = R*Aw/12$$

~~1. The mean pond depth (pond volume/surface area) should be at least 4 feet and not more~~

~~than 10 feet.~~

~~2. The pond should have a safety bench extending from the edge of the water into the pond a minimum distance of 10 feet with a maximum slope of 10:1 (i.e., the pond should be no greater than 1 foot in depth within 10 feet of the shoreline.~~

~~3. The maximum interior pond slopes, inside the safety bench should be no greater than 4:1 (horizontal to vertical).~~

~~4. The pond outlet structure shall not be closer than 50% of the pond length from the pond inlet to prevent short circuiting.~~

~~5. The pond outlet structure shall be designed to skim and prevent floating debris from leaving the pond.~~

~~6. Where infiltration basins or rain gardens are possible and allowed by the Wellhead protection plan, the Walker dead storage volumes as calculated herein may be modified to account for the infiltration volumes.~~

~~Relocate 9.27.14 Subdivision 2 to 9.27.11 as Subdivision 3 and renumber remaining Section Subdivisions 3 and 4.~~

Recommended Illicit Discharge Ordinance

ORDINANCE #07-__

CITY OF RAMSEY

ANOKA COUNTY
STATE OF MINNESOTA

AN AMENDMENT TO CHAPTER __ OF THE CITY CODE, WHICH CHAPTER IS KNOWN AS _____ OF THE CITY CODE OF RAMSEY, MINNESOTA

AN ORDINANCE ADDING SECTION ____ TITLED "ILLICIT DISCHARGE ELIMINATION"

The City of Ramsey Ordains:

SECTION 1. AMENDMENT

Chapter ___ of the Ramsey City Code is amended by adding the following text for Section ___

X.XX ILLICIT DISCHARGE ELIMINATION

X.XX.01 Purpose. The purpose of this ordinance is to control or eliminate storm water pollution associated with illicit discharges that may occur within the city.

X.XX.02 Scope. The State of Minnesota requires illicit discharge limitations into surface waters; and the City Council desires to protect its surface waters; and to provide long-term planning to minimize the impact of illicit pollutants on storm water and groundwater; and to encourage "best management practices" for the control of these illicit discharges. This Ordinance develops regulations to manage illicit storm water discharge within the city.

X.XX.03 Storm Water Planning And Development

Subdivision 1. Supplemental Definitions.

This section shall supplement the definitions Chapter 9.27.03 of the City Code, City of Ramsey, Minnesota. All definitions given in said Chapter 9.27.03 shall apply to this Illicit Discharge Ordinance as if written herein.

CFR - Code of Federal Regulations

Contaminated - Containing a harmful quantity of any substance.

Contamination - The presence of or entry of any substance which may be deleterious to the public health and/or the quality of the water into the public storm water system, Waters of the State, or Waters of the United States.

Cosmetic Cleaning - Cleaning done for cosmetic purposes to the exterior of buildings, motorized vehicles, parking lots, recreational vehicles or similar activity. It does not include industrial cleaning, cleaning associated with manufacturing activities, hazardous or toxic waste cleaning, or any cleaning otherwise regulated under federal, state, or local laws.

~~**Harmful Quantity** - The amount of any substance that will cause pollution of waters of the City, State or Nation that will cause lethal or sub-lethal adverse effects on the representative, sensitive aquatic monitoring organisms residing in waters.~~

~~**Mobile Commercial Cosmetic cleaning** – power washing, steam cleaning and any other mobile cosmetic cleaning operation of vehicles and/or exterior surfaces engaged for commercial purposes.~~

~~**Municipal Separate Storm Sewer System (MS4)** - The system of conveyances, including sidewalks, municipal streets, driveways, curb & gutter, ditches, channels, retention basins, catch basins or similar storm water inlets, and/or any other conveyance delivering water to the public storm sewer collection and delivery system.~~

~~**MS4 Permit** - The Minnesota Pollution Control Agency (MPCA) permit issued to the City of Ramsey for monitoring and maintaining water quality in its MS4. The Environmental Protection Agency has promulgated the National Pollution Discharge Elimination System, Phase II storm water rules. The MPCA has delegated the responsibility to administer the National Pollution Discharge Elimination System, Phase II storm water permit system to MS4 communities.~~

~~**National Pollutant Discharge Elimination System** - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the federal Clean Water Act.~~

~~**NOI** - Notice of Intent.~~

~~**Notice of Intent** - A written notice to the Minnesota Pollution Control Agency that the City plans on meeting the MS4 permit requirements.~~

~~**Point Source** - Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.~~

~~**Pollution** - The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any Waters of the State or the MS4, that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.~~

~~**Release** – Any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into groundwater, subsurface soils, surface soils, the municipal separate storm sewer system (MS4) or the Waters of the State.~~

~~**Storm** Water Pollution Prevention Plan - A plan required by a permit to discharge storm water associated with industrial activity, including construction, and which describes and ensures the implementation of practices that are to be used to reduce the pollutants in storm water discharges associated with industrial activity at the facility.~~

~~**SWPPP** - Storm water pollution prevention plan.~~

Subd. 2. Administration.

The City of Ramsey Director of Public Works and the Director's authorized representatives are authorized to administer, implement, and enforce the provisions of this Ordinance.

Subd. 3. Discharge to MS4 Prohibited.

A. A person commits a violation if the person introduces or causes to be introduced into the Ramsey MS4 any discharge that is not composed entirely of storm water.

The following are considered exempt discharge activities from enforcement action for a violation of subdivision 8.A

1. A discharge authorized by, and in full compliance with a site specific NPDES permit such as a storm water management plan permit for construction activities
2. A discharge or flow resulting from fire fighting by the Fire Department;
3. Agricultural storm water runoff;
4. A discharge or flow from water line flushing or disinfection that contains no harmful quantity of total residual chlorine or any other chemical used in line disinfection;
5. A discharge or flow from lawn watering, or landscape irrigation;
6. A discharge or flow from a diverted stream flow or natural spring;
7. A discharge or flow from uncontaminated pumped groundwater or rising groundwater;
8. Uncontaminated groundwater infiltration;
9. Uncontaminated discharge or flow from a foundation drain, sump pump, or footing drain;
10. A discharge or flow from a potable water source not containing any harmful substance or material from the cleaning or draining of a storage tank or other container;
11. A discharge or flow from air conditioning condensation that is unmixed with water from a cooling tower, emissions scrubber, emissions filter, or any other source of pollutant;
12. A discharge or flow from a riparian habitat or wetland;
13. A discharge or flow from cold water (or hot water with prior permission of the Director) used in street washing or cosmetic cleaning that is not contaminated with any soap, detergent, degreaser, solvent, emulsifier, dispersant, or any other harmful cleaning substance; or
14. Drainage from a private residential swimming pool containing no harmful quantities of chlorine or other chemicals. Drainage from swimming pool filter backwash is prohibited.

B. No exemption shall be allowed under Subdivision 3.B if:

1. The discharge or flow in question has been determined by the City to be a source of a pollutant or pollutants to the waters of the State or to the MS4;
2. Written notice of such determination has been provided to the discharger; and
3. The discharge has continued after the expiration of the time given in the notice to cease the discharge.

C. A person commits a violation if the person introduces or causes to be introduced into the MS4 any harmful quantity of any substance.

Subd. 4. Connection of Sanitary Sewer Prohibited.

A. A person commits an offense if the person connects a line conveying or discharges a harmful quantity of pollutant to the MS4, or allows such a connection to continue.

Subd. 5. Nuisances.

1. An actual or threatened discharge to the MS4 that violates or would violate this Article is hereby declared to be a nuisance.

2. A line conveying sewage or designed to convey sewage that is connected to the MS4 is hereby declared to be a nuisance.

Subd. 6. Emergency Suspension of Utility Service and MS4 Access.

A. Providing there are State regulations restricting the interruption of service, the City may, without prior notice, suspend water service, sanitary sewer service, and/or MS4 discharge access to a person discharging to the MS4, Waters of the State, or Waste Water Treatment Plant when such suspension is necessary to stop an actual or threatened discharge which:

1. Presents or may present imminent and substantial danger to the environment or to the health or welfare of persons; or

2. Presents or may present imminent and substantial danger to the MS4 or Waters of the State.

B. When the Ramsey Director Public Works determines that City-provided water and/or sanitary sewer service needs to be suspended pursuant to Subdivision 11.A, the Director of Public Works is empowered to order such suspension.

C. As soon as is practicable after the suspension of service or MS4 discharge access, the Director of Public Works shall notify the violator of the suspension in person or by certified mail, return receipt requested, and shall order the violator to cease the discharge immediately. When time permits, the Director should also attempt to notify the violator prior to suspending service or access.

D. If the violator fails to comply with an order issued under Subdivision 11.C, the Director may take such steps is deemed necessary to prevent or minimize damage to the MS4 or Waters of the State, or to minimize danger to persons.

E. The City shall not reinstate suspended services or MS4 access to the violator until:

1. The violator presents proof, satisfactory to the Director, that the noncomplying discharge has been eliminated and its cause determined and corrected;
2. The violator pays the City for all costs the City incurred in responding to abating, and remediating the discharge or threatened discharge; and
3. The violator pays the City for all costs the City will incur in reinstating service or access.

F. A violator whose service or access has been suspended or disconnected may appeal such enforcement action to the Director, in writing, within ten days of notice of the suspension.

G. The City may obtain a lien against the property to recover its response costs.

H. The remedies provided by this Section are in addition to any other remedies set out in this chapter. Exercise of this remedy shall not be a bar against, or a prerequisite for, taking other action against a violator.

Subd. 7. Non-emergency Suspension of Utility Service and MS4 Access.

A. The City may terminate the City-provided water supply, sanitary sewer connection, and/or MS4 access any person discharging to the MS4 in violation of this ordinance.

B. The Director of Public Works will notify a violator of the proposed termination of its water supply, sanitary sewer connection, and/or MS4 access. The violator may petition the Director for a reconsideration and hearing before the City Council.

C. The City shall not reinstate suspended services or MS4 access to the discharger until:

1. The violator presents proof, satisfactory to the Director, that the non-complying discharge has been eliminated and its cause determined and corrected; and

2. The violator pays the City for all costs the City will incur in reinstating service or MS4 access.

D. The remedies provided by this Section are in addition to any other remedies set out in this ordinance. Exercise of this remedy shall not be a bar against, nor a prerequisite for, taking other action against a violator.

E. A person commits a violation if the person reinstates water service, sanitary sewer service, and or MS4 access to premises terminated pursuant to this ordinance, without the prior approval of the Director of Public Works.

Subd. 8. The Ramsey City Code, Chapter __ "Penalty for Violation" apply to violations to this code. The Section for "Violation and Misdemeanor" are hereby adopted in their entirety, by reference, as though repeated verbatim herein.

Adopted by the City Council of the City of Ramsey, Anoka County, Minnesota, this _____ day of _____, 2008.

ATTEST: _____ _____
City Administrator Mayor

The foregoing Ordinance was adopted by the following votes:
Ayes: _____
Nayes: _____
Absent: _____
Published in _____ on _____.

Appendix ~~B~~A

Ramsey City-wide

Storm Water Pollution Prevention Plan

Appendix ~~C~~B

Comment Letters