UPDATE OF THE STORM WATER MANAGEMENT MASTER PLAN FOR THE CITY OF NEW BERLIN

April 13, 2010

Adopted by Ordinance #2427, dated April 13, 2010 as Amendment to the City of New Berlin's 2020 Comprehensive Plan

Resolution 10-01, dated March 29, 2010

Approved by WRM Committee March 9, 2010

FINAL
Addendum 1
Storm Water Management Master Plan
City of New Berlin

PREPARED FOR

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PREPARED FOR:

City of New Berlin

STATE OF WISCONSIN **WAUKESHA COUNTY** **CITY OF NEW BERLIN**

RESOLUTION NUMBER 10-01

A Resolution adopting the amendment to the City's Comprehensive plan to incorporate addendum #1 to the City's Storm Water Management Master Plan and a new Park and Open Space Plan for 2010.

WHEREAS, Section 66.1001(4) of the Wisconsin Statutes, establish the required procedure for a local government to adopt a comprehensive plan and Section 66.1001(2) identifies the required elements of a comprehensive plan; and

WHEREAS, The planning process was open to the public and numerous efforts were made to assure the broadest participation to establish the goals and elements considered for and contained within the comprehensive plan in compliance with Section 66.1001 of the Wisconsin State Statutes, and

WHEREAS, The City of New Berlin prepared and followed a Public Participation Plan that was adopted by the Plan Commission on September 10, 2007 and the Common Council on September 25, 2007 a copy of which is on file in the Department of Community Development.

WHEREAS, the City of New Berlin Plan Commission has the authority to adopt the Comprehensive Plan and associated amendments as necessary by resolution and also to recommend that the Common Council adopt the comprehensive plan and associated amendments as necessary via Ordinance; and

WHEREAS, the City of New Berlin prepared the "City of New Berlin 2020 Comprehensive Plan", which is on file with the Department of Community Development and available on the City's website www.newberlin.org, containing all maps and other descriptive materials, to be the comprehensive plan for the City; and

WHEREAS, that the Plan Commission of the City of New Berlin adopted the City of New Berlin 2020 Comprehensive Plan as the City's comprehensive plan via Resolution No. 09-02 on November 2nd, 2009, and the Common Council adopted the Comprehensive Plan via Ordinance No. 2422 on December 8th, 2009; and

WHEREAS, GRAEF working at the request of the City of New Berlin, has assisted the City in preparing Addendum # 1 to the City's Storm Water Management Master Plan and a new Park and Open Space Plan: 2010 have been completed and need to be incorporated into the City's adopted Comprehensive Plan.

WHEREAS, the Plan findings and recommendations are set forth in Addendum # 1 to the City's Storm Water Management Master Plan and a new Park and Open Space Plan: 2010, a copy of both plans are attached as Exhibit A. Amendments to an adopted comprehensive plan pursuant to WI State Statute 66.1001 require a Class I notification along with a pubic hearing.

WHEREAS, the Park and Open Space Plan: 2010 provides for an integrated system of parks and open space sites within the City of new Berlin, a system that will preserve natural resources and enhance recreational activities for present and future residents of the City; and

WHEREAS, adoption of the Park and Open Space Plan: 2010 by the Common Council and approval by the Wisconsin Department of Natural Resources will make the City eligible for assistance in the acquisition and development of outdoor recreation and open space sites and related facilities under the State of Wisconsin Stewardship Program and other grant programs administered by the Department; and

WHEREAS, the Parks, Recreation and Forestry Commission unanimously approved the Park and Open Space Plan: 2010 on December 14, 2009, following public Open House sessions held on September 8th and 9th, 2009; and

WHEREAS, the Plan Commission reviewed the addendum #1 to the City's Storm Water Management Master Plan and Park and Open Space Plan: 2010 on February 1, 2010; and

WHEREAS, the Water Resources Management Utility unanimously approved the addendum #1 to the City's Storm Water Management Master Plan on March 9, 2010 , following public Open House sessions held on September 8th and 9th, 2009.

WHEREAS, the City has duly noticed a public hearing on the aforementioned comprehensive plan amendments and the Plan Commission held the public hearing on March 1, 2010.

NOW, THEREFORE, BE IT RESOLVED, that the Plan Commission of the City of New Berlin hereby accepts and adopts the attached City of New Berlin 2020 Comprehensive Plan amendments including the Park and Open Space Plan: 2010 and addendum #1 to the City's Storm Water Management Master Plan, recognizing that the Common Council must also adopt the Comprehensive Plan via Ordinance for it to become effective; and

BE IT FURTHER RESOLVED that the Plan Commission does hereby recommend that the Common Council adopt Ordinance No. 2427; which will constitute its adoption of the Comprehensive Plan amendments.

Passed and adopted by the Plan Commission on this 29th day of March 2010.

APPROVED:

Jack F. Chiovatero, Mayor

Certified/Countersigned:

Gregory Kessler, AICP
Plan Commission Secretary

STATE OF WISCONSIN WAUKESHA COUNTY CITY OF NEW BERLIN

ORDINANCE NO. 2427

AN ORDINANCE TO ADOPT THE AMENDMENTS TO THE CITY'S COMPREHENSIVE PLAN TO INCORPORATE ADDENDUM #1 TO THE CITY'S STORM WATER MANAGEMENT MASTER PLAN AND the PARK AND OPEN SPACE PLAN UPDATE.

The Common Council of the City of New Berlin do ordain as follows:

SECTION I

Pursuant to section 62.23(2) and (3) of the Wisconsin Statutes, the City of New Berlin, is authorized to prepare and adopt a comprehensive plan as defined in section 66.1001(1)(a) and 66.1001(2) of the Wisconsin Statutes.

SECTION II

The Common Council of the City of New Berlin, Wisconsin, has adopted written procedures designed to foster public participation in every stage of the preparation of a comprehensive plan as required by section 66.1001(4)(a) of the Wisconsin Statutes.

SECTION III

The Plan Commission of the City of New Berlin by a majority vote of the Commission present recorded in its official minutes, adopted Resolution 10-01 recommending to the Common Council the adoption of the documents entitled "Addendum #1 to the City's Storm Water Management Master Plan" and "The Park and Open Space Plan Update", a copy of both plans are attached as Exhibit A, containing amendments to the elements specified in section 66.1001(2) of the Wisconsin Statutes.

SECTION IV

The City held a public hearing on March 1, 2010 on these Comprehensive Plan amendments, in compliance with the requirements of section 66.1001(4)(d) of the Wisconsin Statutes.

SECTION V

The Common Council of the City of New Berlin, Wisconsin, does, by enactment of this ordinance, formally adopt the documents entitled, " Addendum #1 to the City's Storm Water Management Master Plan" and "The Park and Open Space Plan Update," pursuant to section 66.1001(4)(c) of the Wisconsin Statutes.

SECTION VI

All ordinances or parts of ordinances contravening the terms and conditions of this

ordinance are hereby to that extent repealed.

SECTION VI

This ordinance shall take effect upon passage and publication as approved by law.

PASSED AND ADOPTED by the Common Council this 13th day of April, 2010.

APPROVED:

Jack F. Chiovatero, Mayor

Countersigned:

Kari D.L. Morgan, City Clerk

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1.0 INTRODUCTION

The Storm Water Management Master Plan (Master Plan) for the City of New Berlin was completed in May, 2000. In 2007, the City initiated preparation of the 2020 Comprehensive Plan, which includes updating its Storm Water Master Plan. Since completion of the Master Plan, there have been changes in storm water regulations that impact the City, and the City has completed several storm water management planning projects. This addendum has been prepared to provide updates to the Master Plan regarding regulatory requirements, recommendations, implementation schedule, and funding and finance options. In addition, this addendum reflects the elements of the 2020 Comprehensive Plan that have an impact on the City's storm water management program.

2.0 REGULATORY REQUIREMENTS

Sections 3.9 and 3.10 in the 2000 Master Plan summarized the Wisconsin storm water regulations that applied to the city of New Berlin at the time the plan was developed. Since then, some of the storm water regulations applicable to the City have been modified, and some new regulations have been developed. These include:

- Wisconsin Administrative Code Chapter NR 216 – effective August 1, 2004
- City of New Berlin WPDES Storm Water Discharge Permit – effective October 1, 2008
- Wisconsin Administrative Code Chapter NR 151 – effective October 1, 2002
- MMSD Chapter 13 Surface Water and Storm Water – effective January 1, 2002
- City of New Berlin Zoning Ordinance No. 2268 – Construction Site Erosion Control – adopted June 28, 2005
- City of New Berlin Zoning Ordinance No. 2267 – Post-Construction Storm Water Management – adopted June 28, 2005
- City of New Berlin Storm Water Management Ordinance No. 2193 – Storm Water Runoff - adopted April 23, 2003
- City of New Berlin Ordinance 2133 – Storm Water Utility formation
- City of New Berlin Ordinance 2269 – Illicit Discharge
- City of New Berlin Ordinance 2395 - Floodplain

The changes incorporated in these regulations impact both storm water discharge quality and quantity requirements for the City. The applicable storm water regulations for the city of New Berlin as of 2008, discussed in subsections 2.1 and 2.2 below, serve to update sections 3.9 *Wisconsin Storm Water Regulations* and 3.10 *Other Storm Water Management Related Regulations* of the Master Plan. These regulatory requirements for storm water management are summarized in Table 1.

2.1. WISCONSIN STORM WATER REGULATIONS –

2.1.1 CHAPTER NR 216 WISCONSIN ADMINISTRATIVE CODE

Chapter NR 216 of the Wisconsin Administrative Code sets forth the administrative rules for the State storm water discharge permit program. Chapter NR 216 took effect on November 1, 1994, and was most recently repealed and replaced effective August 1, 2004. In general, the following entities are required to obtain storm water discharge permits under Chapter NR 216:

1. An Owner or operator of a municipal separate storm sewer system serving an incorporated area with a population of 100,000 or more.
2. An owner or operator of a municipal separate storm sewer system notified by WDNR prior to August 1, 2004, that they must obtain a permit.
3. An owner or operator of a municipal separate storm sewer system located within a developed urban area as defined by the U.S. Bureau of the Census.
4. An owner or operator of a municipal separate storm sewer system serving a population of 10,000 or more in a municipality with a population density of 1,000 persons or more per square mile as determined by the U.S. Bureau of the Census.
5. Industries identified in Section NR 216.21.18
6. Construction sites, except those associated with agricultural land uses, those for commercial buildings regulated by Chapters Comm 50 through 64 of the Wisconsin Administrative Code, 19, 20 and Wisconsin Department of Transportation projects which are subject to the liaison cooperative agreement between the WDNR and WisDOT.

As a result of item 2 above, the city of New Berlin was issued a Wisconsin Pollutant Discharge Elimination System Storm Water Discharge Permit on January 1, 2004. The permit was revised and re-issued on October 1, 2008.

2.1.2 WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) PERMIT

The permit conditions require the City to reduce nonpoint source pollution to the "maximum extent practicable" through implementation of a set of minimum control measures, including:

- Public Education and Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Pollutant Control
- Post-Construction Storm Water Management
- Pollution Prevention
- Storm Water Quality Management (compliance with NR 151)

Additional conditions of the permit require the City to:

- Implement a program to control the discharge of pollutants of concern to impaired water bodies listed in accordance with section 303(d)(1) of the federal Clean Water Act and comply with any total maximum daily load (TMDL) wasteload allocations for an impaired water body if established by the WDNR before the permit expires
- Maintain a municipal separate storm sewer system map
- Submit an annual report to the WDNR summarizing the status of implementing the permit requirements.

The Storm Water Quality Management condition in the WPDES permit requires the City to meet the nonagricultural (urban) performance standards included in Chapter NR 151 of the Wisconsin Administrative Code. A specific compliance schedule for activities to be conducted through 2013 is included in Section 3.2 of the October 2008 permit.

2.1.3 CHAPTER NR 151 WISCONSIN ADMINISTRATIVE CODE:

Chapter NR 151 of the Wisconsin Administrative Code establishes runoff pollution performance standards designed to achieve water quality standards as required by section 281.16 (2) and (3), of the Wisconsin Statutes. The following is an excerpt from the Southeastern Wisconsin Regional Planning Commission's Regional Water Quality Management Plan Update1 that summarizes the nonagricultural performance standards of Chapter NR 151:

Nonagricultural (urban) Performance Standards

The nonagricultural performance standards set forth in Chapter NR 151 encompass two major types of land management. The first includes standards for areas of new development and redevelopment and the second includes standards for developed urban areas. The performance standards address the following areas:

- Construction sites for new development and redevelopment,
- Post construction phase for new development and redevelopment,
- Developed urban areas, and
- Nonmunicipal property fertilizing.

Chapter NR 151 requires that municipalities with WPDES storm water discharge permits reduce the amount of total suspended solids in storm water runoff from areas of existing development that is in place as of October 2004 to the maximum extent practicable, according to the following standards:

- By March 10, 2008, the NR 151 standards call for a 20 percent reduction, and
- By October 1, 2013, the standards call for a 40 percent reduction.

[1] *SEWRPC Planning Report No. 50*, A Regional Water Quality Management Plan Update for the Greater Milwaukee Watersheds, Chapter VI - Legal Structures Affecting the Regional Water Quality Management Plan Update, December 2007.

Also, permitted municipalities must implement 1) public information and education programs relative to specific aspects of nonpoint source pollution control; 2) municipal programs for collection and management of leaf and grass clippings; and 3) site-specific programs for application of lawn and garden fertilizers on municipally controlled properties with over five acres of pervious surface. Under the requirements of Chapter NR 151, by March 10, 2008, incorporated municipalities with average population densities of 1,000 people or more per square mile that are not required to obtain municipal storm water discharge permits must implement those same three programs.

In addition, regardless of whether a municipality is required to have a storm water discharge permit under Chapter NR 216, Chapter NR 151 requires that all construction sites that have one acre or more of land disturbance must achieve an 80 percent reduction in the sediment load generated by the site. With certain limited exceptions, those sites required to have construction erosion control permits must also have post-development storm water management practices to reduce the total suspended solids load from the site by 80 percent for new development, 40 percent for redevelopment, and 40 percent for infill development occurring prior to October 1, 2012. After October 1, 2012, infill development will be required to achieve an 80 percent reduction. If it can be demonstrated that the solids reduction standard cannot be met for a specific site, total suspended solids must be controlled to the maximum extent practicable.

Section NR 151.12 of the Wisconsin Administrative Code requires infiltration of post-development runoff from areas developed on or after October 1, 2004, subject to specific exclusions and exemptions as set forth in Sections 151.12(5)(c)5 and 151.12(5)(c)6, respectively. In residential areas, either 90 percent of the annual predevelopment infiltration volume or 25 percent of the post-development runoff volume from a two-year recurrence interval, 24-hour storm, is required to be infiltrated. However, no more than 1 percent of the area of the project site is required to be used as effective infiltration area. In commercial, industrial and institutional areas, 60 percent of the annual predevelopment infiltration volume or 10 percent of the post-development runoff volume from a two-year recurrence interval, 24-hour storm, is required to be infiltrated. In this case, no more than 2 percent of the rooftop and parking lot areas are required to be used as effective infiltration area.

Section NR 151.12 also generally requires impervious area setbacks of 50 feet from streams, lakes, and wetlands. This setback distance is increased to 75 feet around Chapter NR 102-designated Outstanding or Exceptional Resource Waters or Chapter NR 103-designated wetlands of special natural resource interest. Reduced setbacks from less susceptible wetlands and drainage channels of not less than 10 feet may be allowed.

(Note: NR 151 is currently undergoing some revisions. Pertinent revisions will be included in this section after the regulation has been finalized. It is anticipated that the information provided in the previous version regarding anticipated total suspended solids (TSS) removal for street sweeping will be reduced.)

2.2. OTHER STORM WATER MANAGEMENT RELATED REGULATIONS –

In addition to the Wisconsin Storm Water Regulations and performance standards contained in NR 216 and NR 151 described in the previous section, there are several federal, state, and local regulations that affect the City's storm water management. Since the completion of the Master Plan, there is one new local regulation and a few that have been modified. The new local regulation is the Milwaukee Metropolitan Sewerage District's Chapter 13 Surface Water and Storm Water Rule.

2.2.1 MILWAUKEE METROPOLITAN SEWERAGE DISTRICT'S CHAPTER 13 SURFACE WATER AND STORM WATER RULE (CHAPTER 13)

MMSD's Chapter 13 rule sets forth storm water runoff quantity requirements. Chapter 13 was implemented on January 1, 2002. The rule requires a reduction in peak flow rates from new development and most redevelopment occurring within the MMSD service area, with a goal of not increasing flooding downstream.

The rule applies to development or redevelopment that involves an increase in impervious surface of one-half acre or more. Developments that fall under the rule are required to limit runoff from new development to 0.15 cubic feet per second (cfs) per acre for the 2-year storm and 0.5 cfs per acre for the 100-year storm. Another method to comply with the rule requires showing that runoff discharged from the site will be distributed over the critical time period of the watershed such that the volume leaving the site under the developed condition is the same as it was under pre-developed conditions, according to guidance provided by the MMSD. The rule does not require the management of storm water runoff from impervious surfaces already in existence at the time the rule was adopted.

Chapter 13 required each community within the MMSD's sewer service area to adopt a storm water management ordinance that implements the rule's requirements. Communities that already had a storm water management ordinance were required to revise the ordinance to include Chapter 13 but could choose to also keep their previous requirements for flow reduction if they were more stringent. Communities are required to review development site storm water management plans for compliance with their local ordinance and Chapter 13 and then submit to MMSD.

The rule creates exemptions for the following types of development:

- Development on land that drains directly into Lake Michigan or into certain other watercourses
- Development that creates a proportion of new impervious surface relative to the development site's total land area of not more than 5%.
- Residential infill development of 5 acres or less with a proportion of impervious surface less than 20% of the total site, provided that each boundary of the site is contiguous to earlier development served by sewers, streets, or public water, or contiguous to parkland, public lands, a utility right-of-way, or a watercourse.
- Recreational trails that are 10 feet or less in width, if they have a pervious buffer of at least five feet on each side2.

Chapter 13 also includes provisions for storm water outfalls and conveyance systems to prevent any reduction in the level of protection provided by flood abatement projects implemented by the District or increase in the regional flood. It also requires municipalities to prevent obstructions at storm sewer outfalls or other storm water structures by managing debris and sediment from the land they own or maintain and from the public rights of way.

The Chapter 13 requirements were adopted by reference into the City's Storm Water Management ordinance under Section 07, *Storm Water Management Standards*, subsection (6).

2.2.2 NR 120 - NONPOINT SOURCE POLLUTION ABATEMENT PROGRAM (EXCERPT FROM WDNR CLEARINGHOUSE RULE 00-028, 2002)

Chapter NR 120 was repealed and a new chapter NR 120 was created effective October 1, 2002. The changes were made in three main areas including scope of the chapter, cost share administration and critical sites administration.

Scope of Chapter NR 120

Chapter NR 120, as recreated, would be reduced in scope from the existing chapter.

- The process for selecting priority watershed and priority lake projects has been eliminated entirely, pursuant to s. 281.65(3m), Stats.

- The focus of chapter NR 120 is to administer cost-sharing for rural best management practices in priority watershed projects. The department of agriculture, trade and consumer protection under chapter ATCP 50 will administer rural local assistance grants for priority watershed projects. Urban municipalities in priority watershed projects will be able to seek grant funds under chs. NR 153 and NR 155. In limited situations, an urban municipality may also be able to receive assistance from counties that are receiving grants under ch. NR 120.

[2] Milwaukee Metropolitan Sewerage District. Chapter 13 Surface Water and Storm Water Rule, 2002. Available at www.mmsd.com.

Cost Share Administration

There are several key differences. Nonpoint source grant periods are increased, procedures by which the department will recover unused grant funds are clarified, economic hardship provisions are modified pursuant to state statute, provisions allowing counties to increase the state cost share rate by providing a county match are eliminated pursuant to state statute and provisions requiring counties to cover 100% of cost share payments made in excess of those authorized by the department are added pursuant to state statute. In addition, rural cost share rates have been adjusted to provide greater consistency with cost share rates administered under chapter ATCP 50 and to assure that at least 70% cost sharing is available so that the department can require landowner compliance with agricultural performance standards. Minor changes have been made in code provisions dealing with the following areas to reduce the burden of project administration: recording cost share agreements; releasing landowners and operators from cost- share agreements; department review and approval of cost share agreements and single audit requirements.

Critical Sites

Changes have been made in the schedule requirements for critical site notification. Additional time is allowed where grants are delayed or funding available from the state for reimbursement is inadequate. A provision has been added requiring that a grantee provide cost sharing to all critical sites out of the reimbursements it receives for the priority watershed project from the department.

2.2.3 NR 103 - WATER QUALITY STANDARDS FOR WETLANDS (EXCERPT FROM WDNR CLEARINGHOUSE RULE 00-164, 2001)

The proposed changes to NR 103 address the process for consideration of wetland compensatory mitigation. To make the new process clear, the department proposes a complete re-write of the decision process section of the code under NR 103.08(4). The revision would set forth a different review process depending on the type of activity or the characteristic of the wetland impact. When compensatory mitigation enters into a decision, the specifics for what is required for compensation shall be found in NR 350. NR 350 is a new code that is described below.

2.2.4 NR 350 - WETLAND COMPENSATORY MITIGATION (EXCERPT FROM WDNR CLEARINGHOUSE RULE 00-164, 2001)

A new code, NR 350 - Wetland Compensatory Mitigation, was created to establish requirements for mitigation projects and mitigation banking in accordance with the requirements of the law including: a sequence of compensatory mitigation that requires practicable on-site compensation before allowing off-site compensation and/or use of banks; ratios for wetland replacement based on the type of wetland, proximity of the compensation site to the area of impact, and the type of replacement project; requirements for planning and design of compensation sites; requirements for short and long-term monitoring and management of compensation sites; financial assurances that the sites will be constructed and maintained as approved; requirements for long-term protection of sites as wetlands using easements or deed restrictions; a process for mitigation banking and the responsibilities of bank sponsors and the department; and requirements for public notification on mitigation banks and bank proposals. This new code became effective on February 1, 2002.

2.2.5 CHAPTER 30 – NAVIGABLE WATERS, HARBORS AND NAVIGATION

In early 2004, Wisconsin Act 118 was passed by the legislature to speed up the Chapter 30 permit decision making process. Changes were also made to better protect shoreline areas and habitat.

2.2.6 CITY OF NEW BERLIN ORDINANCE NO. 2133 - STORM WATER UTILITY FORMATION

This ordinance was adopted on March 13, 2001, and established the Stormwater Utility and the rate structure for the Utility. This ordinance was later updated by ordinance 2147.

2.2.7 CITY OF NEW BERLIN ORDINANCE NO. 2193 - STORM WATER RUNOFF

This ordinance was adopted on April 23, 2003. Revisions since 2000 modified the previous version of Chapter 20 of the Municipal Code to incorporate MMSD's Chapter 13 - Surface Water and Storm Water Runoff Management rules by reference. The rules, which were effective January 1, 2002, apply to those portions of the City within the ultimate sewer service area as established by MMSD

2.2.8 CITY OF NEW BERLIN ORDINANCE NO. 2267 – POST-CONSTRUCTION STORM WATER MANAGEMENT ZONING ORDINANCE

This ordinance was adopted in June 28, 2005 and created Section 275-55-1 of the City's Municipal Code. The intent of this ordinance is to reduce the rate and amount of post-construction storm water and associated pollutants reaching waters of the state. Use of this ordinance by municipalities will foster the consistent statewide application of post-construction performance standards for new development and redevelopment contained in subchapters III and IV of chapter NR 151, Wis. Adm. Code.

2.2.9 CITY OF NEW BERLIN ZONING ORDINANCE NO. 2268 – CONSTRUCTION SITE EROSION CONTROL

This ordinance was adopted in June 28, 2005 and created Section 275-55-2 of the City's Municipal Code. The intent of this ordinance is to require the use of best management practices to reduce the amount of sediment and other pollutants resulting from land disturbing construction activities on sites which are otherwise regulated by the Wisconsin Department of Commerce in s. Comm 21.125 or 50.115 of the Wisconsin Administrative Code. The use of this ordinance is intended to foster consistent, statewide application of the construction site performance standards for new development and redevelopment contained in subchapters III and IV of chapter NR 151 of the Wisconsin Administrative Code.

2.2.10 CITY OF NEW BERLIN ORDINANCE NO. 2269 – ILLICIT DISCHARGE

This ordinance was adopted on June 28, 2005 and created Section 275-55-1 of the City's Municipal Code. This ordinance was created in accordance with New Berlin's WPDES permit which includes investigation into potential illicit discharges and outfall screening throughout the City.

2.2.11 CITY OF NEW BERLIN ORDINANCE NO. 2395 - FLOODPLAIN

Ordinance No. 2395 was adopted November 18, 2008 to revise, amend, supplement And Codify Article IX (Section 275-65.22) of the Zoning Ordinance of the City Of New Berlin and the City's Zoning Map based on the modifications to the National Flood Insurance Program (NFIP) regulations regarding the new FEMA adopted Base Flood Elevation Maps And Flood Insurance Study as prepared and approved by the Wisconsin Department Of Natural Resources and FEMA.

2.2.12 ANTICIPATED REGULATORY CHANGES

The following regulatory changes are anticipated or were recently adopted as of the date of this addendum:

- MMSD Chapter 13 is under review and proposed changes have been drafted. Anticipated approval in 2010.
- NR 151 is under review and proposed changes are being drafted. Public hearings were held in February of 2010 with approval anticipated late 2010 or early 2011.
- NR 528 – Management of Accumulated Sediment from Storm Water Structures: Adopted December 1st, 2009
- WDNR has proposed new phosphorus standards. The proposed instream total phosphorus standards are 0.1 parts per million (0.1 mg/l) in rivers and 0.075 parts per million (0.075) in wadeable streams. The public comment period for the proposed phosphorus standards is scheduled to close by the end of April, 2010. As of April 2010, no instream phosphorus standards exist. If implemented, the new phosphorus standards may require the City to take additional measures to reduce the amount of phosphorus that reaches area waterways.
- As of April 1, 2010, fertilizer containing phosphorus cannot be applied to lawns or turf in Wisconsin unless the application meets a specific exemption.

Table 1

Regulatory Requirements

Requirement Name	Effective/Adopted Date	Description
Milwaukee Metropolitan Sewerage District – Chapter 13 Surface Water and Storm Water	January 1, 2002	The rule requires a reduction in peak flow rates from new development and most redevelopment occurring within the MMSD service area, with a goal of not increasing flooding downstream.
Wisconsin Administrative Code Chapter NR 151	October 1, 2002	This permit establishes runoff pollution performance standards designed to achieve water quality standards.
Wisconsin Administrative Code Chapter NR 216	August 1, 2004	Owners or operators of municipal storm sewer systems, Industries and Construction Sites are required to obtain a storm water discharge permit.
Wisconsin Administrative Code Chapter NR 120 – Nonpoint Source Pollution Abatement Program	October 1, 2002	Revisions were made to scope, cost share administration and critical site notification. The ATCP department will administer rural local assistance grants for priority watershed projects. An urban municipality may be eligible to receive financial assistance from counties that are receiving the grant. Additional time is allowed for critical sites where grants are delayed or funding available from the state for reimbursement is inadequate.
Wisconsin Administrative Code Chapter NR 103 – Water Quality Standards for Wetlands	March, 2005	This revision to the current standard would set forth a different review process depending on the type of activity or characteristic of wetland impact. This review process considers wetland compensatory mitigation.

Table 1 - Continued

Requirement Name	Effective/Adopted Date	Description
Wisconsin Administrative Code Chapter NR 350 – Wetland Compensatory Mitigation	February 1, 2002	This code was established to create requirements for mitigation projects and mitigation banking.
Wisconsin Statutes Chapter 30 – Navigable Waters, Harbors and Navigation	Early 2004	The purpose of this legislature was to speed up the Chapter 30 permit process. Changes were also made to better protect shoreline areas and habitat.
City of New Berlin WPDES Storm Water Discharge Permit	October 1, 2008	Wisconsin Pollutant Discharge Elimination System Permit – the conditions of this permit require cities to reduce nonpoint source pollution to the "maximum extent practicable" through implementation of a set of minimum control measures.
City of New Berlin Storm Water Management Ordinance No. 2133	March 13, 2001	This ordinance was established the Stormwater Utility and the rate structure for the Utility. This ordinance was later updated by ordinance 214
City of New Berlin Storm Water Management Ordinance No. 2193	April 23, 2003	This ordinance was adopted in April 23, 2003. Revisions since 2000 modified the previous version of Chapter 20 of the Municipal Code to incorporate MMSD's Chapter 13 - Surface Water and Storm Water Runoff Management rules by reference. The rules, apply to those portions of the City within the ultimate sewer service area as established by MMSD.
City of New Berlin Zoning Ordinance No. 2267 – Post – Construction Storm Water Management Site Erosion Control	June 28 2005	The intent of this ordinance is to reduce the amount of post-construction storm water and associated pollutants reaching waters of the state

Table 1 - Continued

Requirement Name	Effective/Adopted Date	Description
City of New Berlin Zoning Ordinance No. 2268 – Construction Site Erosion Control	June 28, 2005	The intent of this ordinance is to require the use of best management practices to reduce the amount of sediment and other pollutants resulting from land disturbing construction activities on sites
City of New Berlin Storm Water Ordinance No. 2269 - Illicit Discharge Detection and Elimination	June 28, 2005	This ordinance was created in accordance with New Berlin's WPDES permit which includes investigation into potential illicit discharges and outfall screening throughout the City.
City of New Berlin Storm Water Ordinance No. 2395 – Flood Plain	November 18, 2008	This ordinance was created to revise, amend, supplement And Codify Article IX (Section 275-65.22) of the Zoning Ordinance of the City Of New Berlin and the City's Zoning Map based on the modifications to the National Flood Insurance Program (NFIP) regulations regarding the new FEMA adopted Base Flood Elevation Maps And Flood Insurance Study as prepared and approved by the Wisconsin Department Of Natural Resources and FEMA.

3.0 PLANNING STUDIES COMPLETED SINCE YEAR 2000

Since the 2000 Storm Water Management Master Plan, several studies related to storm water management within the City have been completed. These include:

- New Berlin Industrial Park Redevelopment Plan, September, 2004
- City of New Berlin Industrial Park Storm Water Quality Management Plan, May, 2005
- Milwaukee Metropolitan Sewerage District 2020 Facilities Plan, December, 2007
- Southeastern Wisconsin Regional Planning Commission Regional Water Quality Management Plan Update, March 2008

Brief summaries of these plans are provided below.

3.1 NEW BERLIN INDUSTRIAL PARK REDEVELOPMENT PLAN, SEPTEMBER, 2004

The New Berlin Industrial Park Redevelopment Plan's goal was to raise the standards of the Industrial Park to the current competitive standards of newer, surrounding parks. One of the goals of the redevelopment/modernization plan was to create a master plan for all infrastructure improvement, such as road reconstruction, lighting, signage and power distribution. One of the components included in this was storm water management.

Part of the plan presented some initial ideas for managing storm water quality and quantity in the industrial park as well as enhancing/restoring Deer Creek with native plantings and stream channel improvements. The storm water management ideas, including storm water filter systems and underground storage, were carried forward and analyzed in more detail in the May 2005 New Berlin Industrial Park Storm Water Quality Management Plan discussed below.

3.2 CITY OF NEW BERLIN INDUSTRIAL PARK STORM WATER QUALITY MANAGEMENT PLAN, MAY, 2005

This storm water quality management plan focused on three business parks, including the New Berlin Industrial Park, Moorland Road Industrial Park and MSI/Lincoln Avenue Industrial Park (the Park). The plan was conducted in support of the industrial park Modernization Plan, discussed above. The primary purpose of the storm water quality management plan was to improve water quality within the Park and in the downstream reaches of the Deer Creek Watershed. Another purposed was to assess and evaluate ways to alleviate the flooding conditions along Deer Creek within the Park and the drainage easement just north of Lincoln Avenue.

The plan recommended alternatives for the Park to alleviate the flooding issues, meet the MMSD's Chapter 13 requirements, and help the City meet the City-wide pollutant reduction requirements set forth in Chapter NR 151 of the Wisconsin Administrative Code. A combination of roadside bioretention swales, wet detention and on-site treatment devices were recommended to manage storm water quantity and quality throughout the Park.

3.3 CITY OF NEW BERLIN SLAMM ANALYSIS, MARCH, 2008

A Source Loading and Management Model (SLAMM) analysis was conducted in March 2008. The analysis first calculated the amount of pollutants generated by the storm water runoff in the City's developed urban area, and then calculated the current level of reduction in pollutants based on the practices utilized by the City to treat storm water runoff. The conclusion of the 2008 SLAMM analysis was that the City of New Berlin is currently removing 31.7% of the total suspended solids (TSS) generated. This is 8.3% short of the 40% reduction required by the year 2013 as stated in NR 151.

3.4 MILWAUKEE METROPOLITAN SEWERAGE DISTRICT 2020 FACILITIES PLAN (2020 FACILITIES PLAN), DECEMBER, 2007; AND THE SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC) REGIONAL WATER QUALITY MANAGEMENT PLAN UPDATE (RWQMPU), MARCH 2008

The 2020 Facilities Plan and the SEWRPC RWQMPU are two separate planning efforts that were conducted together in a collaborative and coordinated manner. The plans looked at the greater Milwaukee watersheds, which includes all of five watersheds which lie entirely or partially in the greater Milwaukee area, the Lake Michigan direct drainage area, as well as the Milwaukee Harbor estuary and a portion of nearshore Lake Michigan. The watersheds involved are those of the Kinnickinnic River, Oak Creek, Menomonee River, Milwaukee River, and Root River. The main goals of the planning efforts were to cost effectively achieve the greatest water quality improvement, comply with the regulatory requirements, and focus on achieving the publicly-inspired goals and objectives.

One of the major conclusions from this joint planning effort was that nonpoint pollution (e.g., storm water runoff) is the largest source of fecal coliform bacteria, a primary pollutant of concern in all of the greater Milwaukee watersheds, and significant improvements to water quality can only be achieved through regional implementation of extensive measures to reduce pollution from nonpoint sources.

Another conclusion is that the satellite municipalities must continue efforts to maintain inflow and infiltration (I/I) at current levels (within existing development).

An additional water quality issue noted in the plan that impacts the City is the impairment listed for the Root River on WDNR's 303(d) list (2008 version) for dissolved oxygen. The upstream half of the Root River mainstem is considered impaired due to lack of compliance with standards for dissolved oxygen (DO) concentration. Phosphorus and sedimentation from a combination of point and nonpoint sources are cited as factors contributing to the impairment of this section of the River. This impairment is listed in the City's storm water permit (Section 2.7). The Root River Group municipalities are responsible for implementing specific storm water management practices to control the discharge of sediment and phosphorus to the Root River from their municipal storm sewer systems to help address this impairment.

Recommendations for pollution control measures to help mitigate these water quality issues are presented in the SEWRPC RWQMPU and include vacuum street sweeping, wet detention, multi-chambered treatment trains (end of pipe storm water treatment devices), infiltration, illicit discharge elimination and disconnecting residential roof drains from sanitary sewers and infiltrating roof runoff.

4.0 POLLUTANT LOADING ANALYSIS

A pollutant loading analysis was conducted under this plan update using the Source Loading and Management Model (SLAMM) to determine the current levels of Total Suspended Solids (TSS) and phosphorus discharged to surface waters from the developed urban area of the City. The SLAMM model was also used to evaluate alternative storm water quality control measures necessary to meet the requirement of 40% Total Suspended Solids (TSS) reduction for the developed urban area by 2013. The pollutant loading analysis spreadsheet developed for this addendum is attached as Appendix A, and shows in detail the SLAMM model input and results.

4.1 2008 SLAMM ANALYSIS

A pollutant loading analysis was completed in March 2008 to determine if the city of New Berlin had sufficient storm water quality control measures in place to achieve the 20 percent level of reduction required by 2008. The City's storm water quality control measures reflected in the SLAMM model were:

- Street sweeping
- Roadside swales
- 38 privately-owned wet detention basins
- 5 City-owned wet detention basins (Pond SP-2, City Center Ponds 1, 2, 3 and 4)

The results of this pollutant loading analysis indicated that the City's storm water quality control measures in place at that time were reducing the TSS load from the developed urban area by 31.7%.

4.2 PRIMARY SOURCES OF STORM WATER POLLUTANTS

Map 1 shows the various land uses that make up the City's developed urban area. The corresponding pollutant loading rates for the various land uses are shown in Table 2. Industrial, commercial, and extractive land uses generate the greatest concentration of Total Suspended Solids (TSS). However, the single-family residential land in the developed urban area contributes 45 percent of the total TSS load, or four percent more than the industrial, commercial, and extractive lands combined.

Table 2

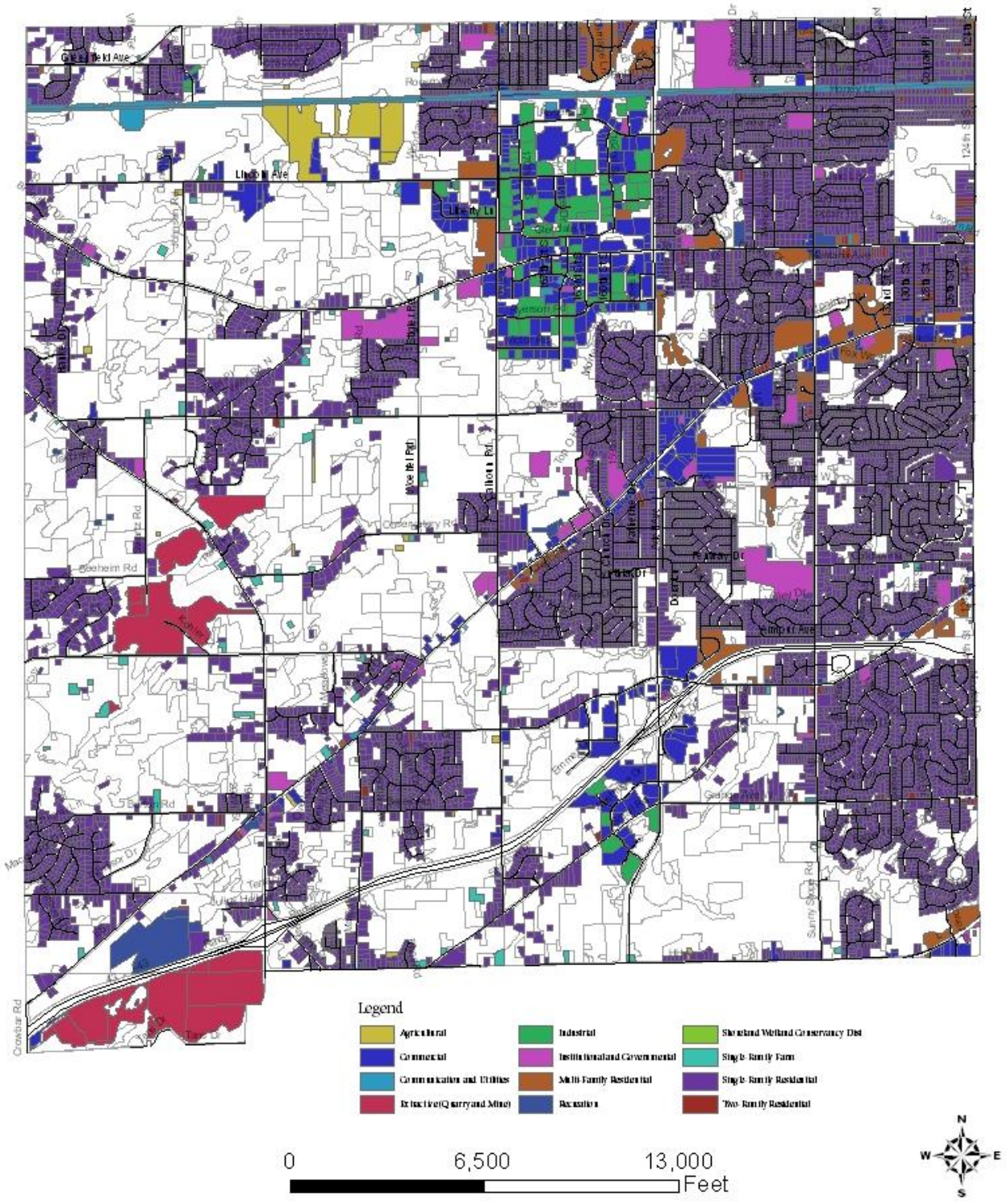
Primary Sources of Storm Water Pollutants in the New Berlin Developed Urban Area

Land Use [1]	Description [2]	Total Suspended Solids [3] (TSS) Loading (lbs/acre/year)	Total TSS Load Generated (lbs/year)	Percent of Total TSS Load
Agricultural	35 acres or greater/family	45	6589	< 1%
Commercial	6.0 acres/100 commercial employees	527	538528	22%
Communication and Utilities	No area requirement	45	8329	< 1%
Extractive (Quarry and Mine)	No area requirement	555	270334	11%
Industrial	12 acres/100 industrial employees	583	189348	8%
Institutional and Governmental	4.5 acres/1000 persons	410	171293	7%
Multi-Family Residential	23 acres/1000 persons	298	121724	5%
Recreation	2.2 acres/1000 persons	148	18953	< 1%
Shoreland Wetland Conservancy Dist	No area requirement	45	16	< 1%
Single-Family Farm	5 acres or greater/family	174	13892	< 1%
Single-Family Residential	1594 acres/1000 persons	174	1094780	45%
Two-Family Residential	46 acres/1000 persons	234	16717	1%

[1] City of New Berlin land use categories.
[2] From the *City of New Berlin Land Use and Urban Design Plan Implementation* and *Land Use Standards for the City of New Berlin.*
[3] Approximate loading rates obtained from SLAMM computer model.

Map 1

Primary Sources of Storm Water Pollutants in the New Berlin Developed Urban Area



Note: City of New Berlin land use categories.

4.3 REGULATED INDUSTRIAL SITES

As shown in Table 3 and on Map 2, there are 36 industrial sites that are covered by a Wisconsin Pollutant Discharge Elimination System (WPDES) Industrial Site Storm Water Discharge Permit. The quality of storm water runoff from the portions of these sites that have industrial activity is controlled by the owner/operator, and not the responsibility of the City. Therefore, these areas were removed from the pollutant load computation. This resulted in a 0.9 percent greater reduction in the City's current level of Total Suspended Solids reduction for the developed urban area.

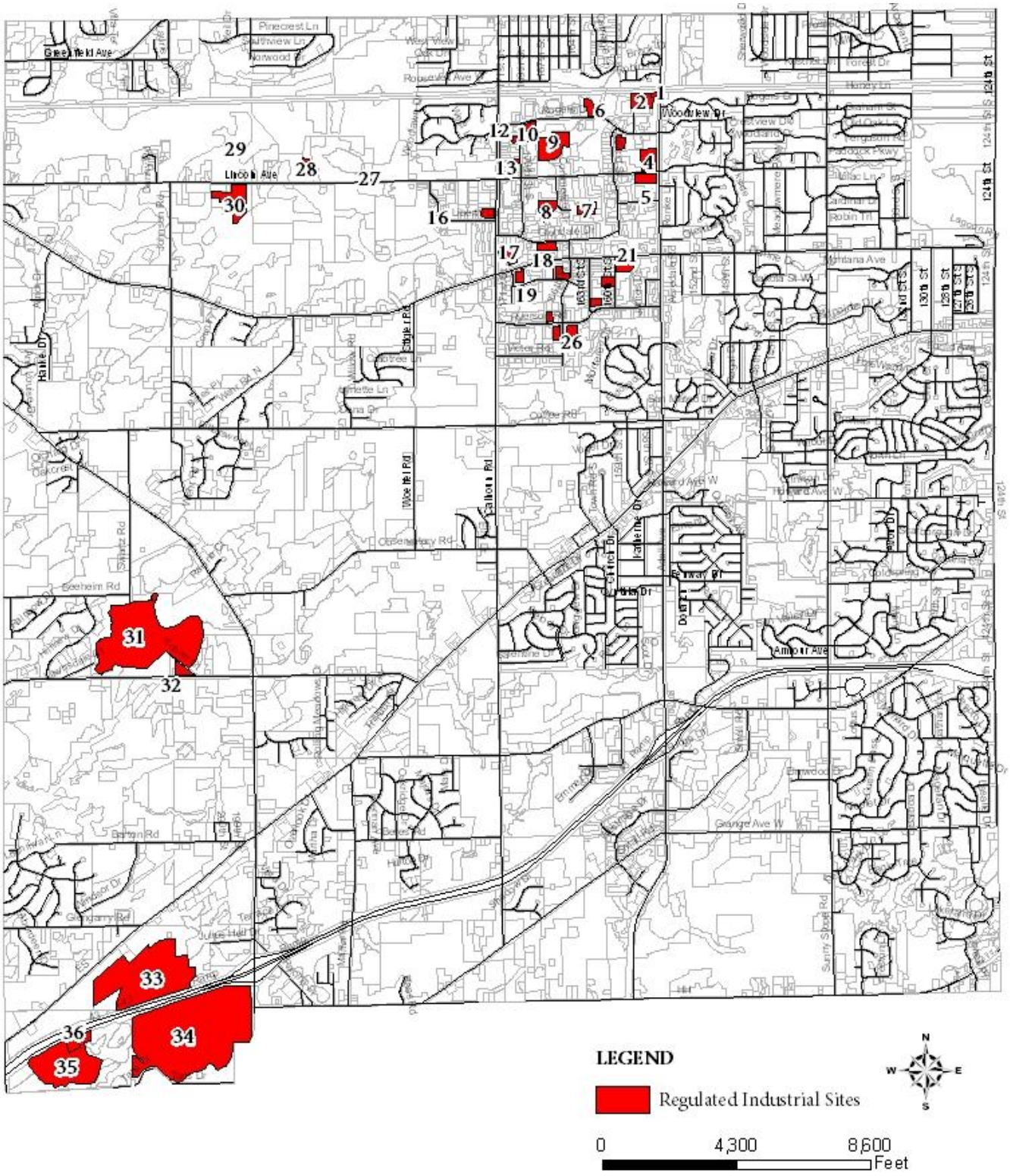
Table 3

Regulated Industrial Sites in the New Berlin Developed Urban Area

ID Number from Map 2	Industrial Site	Site Area (acres)	Regulated Portion of Site (acres)
1	Falk Renew	0.66	0.66
2	Schmidt engineering	8.64	7.57
3	Bodycote Thermal	8.6	2.6
4	Harder Industries	8.09	8.09
5	Jorgensen Machining	4.78	4.78
6	Wenthe Davidson Engineering	10.52	3.61
7	ABB Inc	15.14	4.44
8	Spincraft	6.49	6.49
9	FedEx Smartpost	38.31	15.79
10	Safety Kleen Sys	6.17	6.17
11	Kopp Brothers	1.7	0.82
12	Milwaukee Chaplet & Manufacturing	2.21	0.45
13	Fortress Manufacturing	0.52	0.52
14	Fortress forms	0.47	0.47
15	Southwest Metal Finishing	3.01	2.54
16	Durhan School	1.49	1.49
17	Super Products	8.63	4.02
18	Mexican Accent	3.32	3.32
19	Precision Machine	3.18	1.87
20	SW Metal Finishing	3.74	2.56
21	Industrial Towel	5.06	5.06
22	ACS Group	2.56	2.56
23	Kard Recycling	2.9	1.91
24	Diameters	1.69	1.32
25	McKey Perforating	3.59	2.16
26	Yaskawa Electric	6.44	2.68
27	Starline Trucking	12.13	1.85
28	Certified Products	7.73	4.05
29	Fredrick Bros Trucking	63.58	1.07
30	BT Mail Service	29.03	17.03
31	Kholer Pit	179.4	119.21
32	New Berlin Redi Mix	6.64	3.47
33	Johnson Sand and Gravel	130.1	99.88
34	On Point Gravel Site	220.1	193.61
35	Johnson Sand and Gravel Inc	82.4	55.33
36	Schmitz Redi Mix	3.83	3.83
	Total	892.85	593.3

Map 2

Regulated Industrial Sites in the New Berlin Developed Urban Area



4.4 CITY-OWNED DETENTION BASINS

As noted above, five City-owned wet detention basins were reflected in the 2008 SLAMM analysis. Under this addendum, the following five additional City-owned wet detention basins were reflected in the pollutant loading analysis:

- Calhoun Park
- Gatewood Park
- Lions Park
- Regal Park West
- Westridge

Reflecting these five basins in the pollutant loading analysis resulted in a 3.8 percent greater reduction in the City's current level of Total Suspended Solids reduction for the developed urban area. Characteristics of all the City-owned wet detention basins are shown in Table 4.

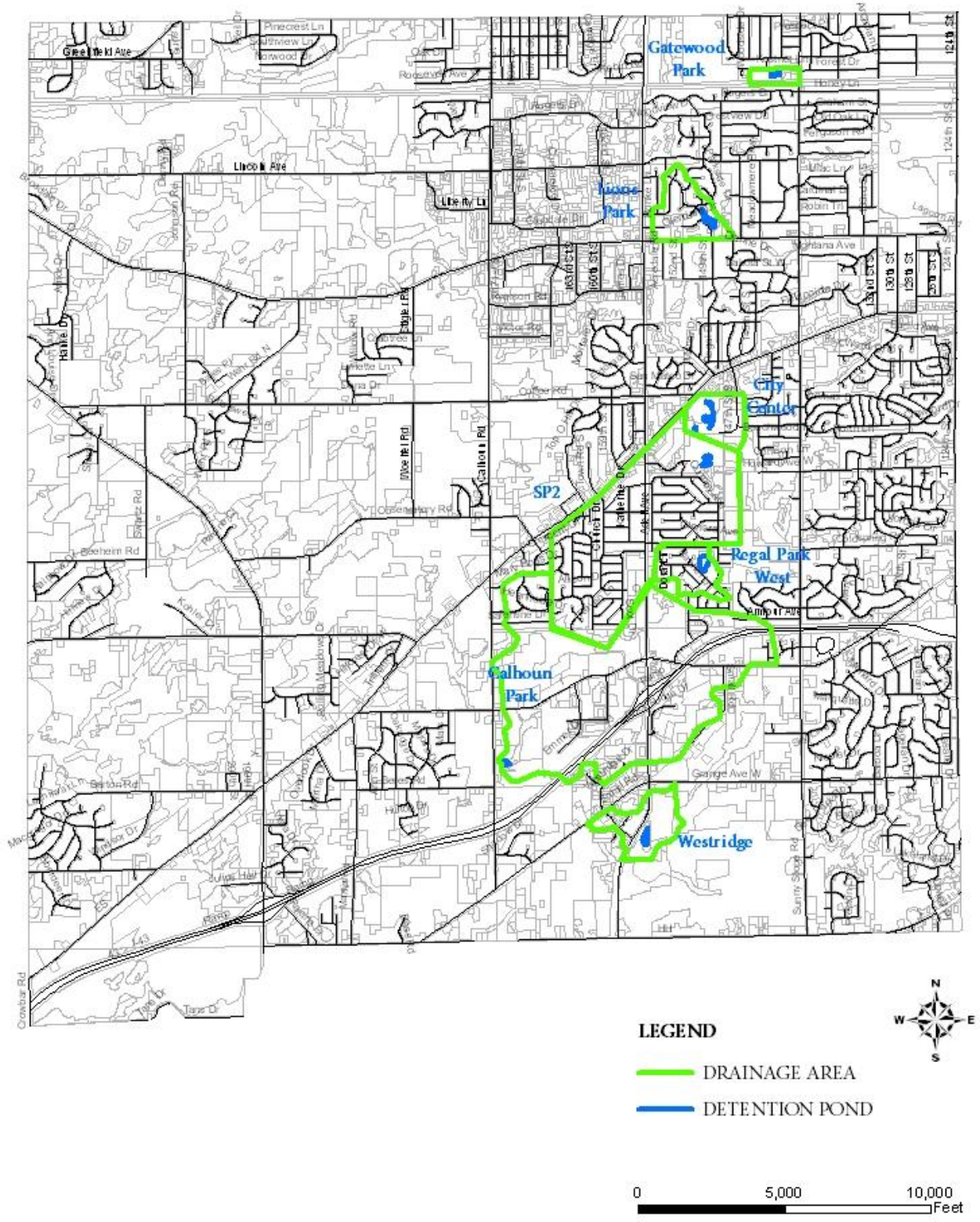
Table 4

City-Owned Detention Basins

Detention Basin	Surface Area of Permanent Pool (acres)	Drainage Area (acres)	Primary Land Use	Incremental Total Suspended Solids Removal Percentage
SP-2	7.71	661.5 ac	Residential Commercial	Previously Modeled*
Calhoun Park	0.74	1090 ac	Residential	0.00%
Gate wood Park	0.82	35 ac	Residential	0.11%
New Berlin Hills	Pond on golf course – no information available			
Lions Park	2.93	95.6 ac	Residential	0.36%
City Center Pond #1	0.36	4.58 ac	Commercial	Previously Modeled*
City Center Pond #2	0.32	4.78 ac	Commercial	Previously Modeled*
City Center Pond #3	0.76	14.32 ac	Commercial Residential	Previously Modeled*
City Center Pond #4	0.6	10.7 ac	Residential Commercial	Previously Modeled*
Regal Park West	2.95	74.33 ac	Residential	0.27%
Westridge	1.81	413 ac	Institutional	3.70%

Map 3

City-Owned Storm Water Detention Basins in the New Berlin Developed Urban Area



5.0 IMPACTS OF REVISED REGULATIONS AND RECENT PLANNING STUDIES ON THE RECOMMENDATIONS IN THE STORM WATER MANAGEMENT MASTER PLAN

As discussed above, storm water regulations have changed, and several planning studies have been completed since the 2000 Storm Water Management Master Plan (Master Plan) was prepared. Therefore, the Master Plan was reviewed to see if the recommendations would result in compliance with the current storm water regulations and meet the City's current storm water management needs.

The original recommendations made under the Master Plan were categorized as follows:

- storm water drainage and flood control
- water quality improvements
- urban land development

The current storm water regulations and recent planning efforts completed by the City are related to:

- total suspended solids reduction (reduce City-wide by 40% by the year 2013)
- phosphorus reduction
- storm water runoff detention from new development and redevelopment (to meet MMSD Chapter 13 requirements)
- maintaining existing I/I levels in existing developed areas
- fecal coliform reduction

The impacts of the current storm water regulations and recent planning efforts on the recommendations made under the Master Plan are discussed below.

5.1 STORM WATER DRAINAGE AND FLOOD CONTROL

The current feasibility of the flood control and drainage facilities listed in Table 9-1 of the Master Plan was not analyzed as part of this addendum. However, assuming the projects identified will be implemented, the following recommendations would help the City meet the current Total Suspended Solids (TSS) reduction requirement:

- Incorporate wet detention into proposed storm water detention facilities.
- Incorporate bioretention swales or grass swales into ditch reconstruction.

These practices may also help reduce phosphorus loads.

5.2 STORM WATER QUALITY IMPROVEMENT

In the Master Plan, ten general source control Best Management Practices (BMPs) and several specific projects were recommended to meet the plan's objectives and criteria. The ten general BMPs are:

- Implement and enforce Storm Water Ordinance / Erosion Control Ordinance / Shoreland Ordinance
- Industrial BMPs and Extractive Land Use BMPs
- Roadway Pavement Sweeping (Street Sweeping)
- Ice Management Practices
- Catch Basin Cleaning
- Landscaping Practices
- Snow Storage Practices
- Agricultural Practices
- Streambank Stabilization
- Public Education and Information Program

The specific projects are:

- Water quality detention basin west of Kelly Lake
- Retrofit several prior converted wetlands into storm water treatment wetlands
- Regional detention facilities (quantity control only)

All of these recommendations would help the City improve storm water quality and meet the requirements in their storm water permit. However, only facilities or best management practices that can be modeled in SLAMM can be used towards meeting the 40% TSS reduction requirements. Therefore, only the street sweeping and catch basin cleaning practices were included in the 2008 SLAMM analysis. The other practices listed cannot be modeled in SLAMM. However, the specific projects could be added to the SLAMM model. In order to do this, more detailed information regarding the design and potential pollutant removal is needed.

Under the Master Plan, regional detention facilities were proposed for flood control only. As noted above, it is recommended that the City evaluate designing these facilities as wet detention basins in order to provide pollutant removal. This may help the City move closer to the 40% TSS reduction goal.

5.3 URBAN LAND USE DEVELOPMENT GUIDELINES

The recommendations provided in the Master Plan for urban land use development are consistent with current regulations, but some current regulations now have specific limitations or targets associated with them. These include:

- Defining allowable peak rates and volumes of discharge – MMSD Chapter 13
- Providing water quality improvement – NR 151

The SEWRPC Regional Water Quality Management Plan Update (RWQMPU) provides additional guidance on storm water management for urban development.

6.0 UPDATED STORM WATER MANAGEMENT RECOMMENDATIONS - 2009

The specific storm water management recommendations developed under this addendum for the city of New Berlin are shown in Table 5 and on Map 4. These recommendations have been developed to help the City comply with the current storm water regulations and meet their current and future storm water management needs.

6.1 DRAINAGE AND FLOOD CONTROL

The recommended drainage and flood control measures shown in the table are the same as those developed under the 2000 Storm Water Management Master Plan, but must be reevaluated before implementation based on current and anticipated drainage and flooding conditions.

The current drainage and flooding issues in the City are shown in Table 6 and on Map 5. It is recommended that stream banks be reevaluated prior to implementing any restoration projects. It is also recommended that roadway ditches be repaired as part of City Road Repair/Construction projects.

6.2 STORM WATER QUALITY CONTROL

The recommended water quality control measures shown consist of those developed under the Master Plan, modifications thereof, and some new recommendations. The main reason for updating the recommended water quality control measures was to meet the Total Suspended Solids (TSS) reduction requirement of 40% by 2013.

Based on the results of the pollutant loading analysis completed under this addendum, the City currently has in place water quality control measures that reduce its Total Suspended Solids (TSS) load from the Developed Urban Area by 36.1 percent. The recommendations, shown in Table 5, made to achieve the required 40 percent TSS reduction level by 2013 (see Table 5) are summarized below.

- Obtain maintenance agreements with additional private property owners of wet detention basins constructed prior to October 2004.
- Enhance the effectiveness of three City-owned ponds.
- Construct the proposed Basin RD-1 serving the Tess Corners watershed to provide wet detention.
- Convert one City-owned dry detention basin to a wet detention basin.
- Retrofit wet detention into five prior converted wetlands.
- Consider wet detention, where feasible, for future facilities intended to alleviate drainage or flooding problems.
- Consider bioretention swales or grassed swales, designed to remove sediment and other pollutants, where ditch reconstruction is proposed.
- Consider additional retrofit practices such as multi-chambered treatment trains or other end of pipe storm water treatment devices for small drainage areas that generate high levels of pollutants.
- Consider recommendations in SEWRPC's RWQMPU and in the MMSD's State of the Art Report (part of the MMSD's 2020 Facilities Plan) for additional urban land use development guidelines and water pollution control technologies, respectively.

As discussed above, the results of 2008 SLAMM Analysis indicated that the City was achieving a 31.7% reduction in Total Suspended Solids (TSS) in storm water runoff from its developed urban area. The results of the SLAMM analysis completed under this addendum indicate that the City is currently achieving a 36.1% reduction in TSS. Therefore, there is a gap of 3.9% between the current TSS reduction level and the 40% level required by 2013. According to Table 5, a combination of pond maintenance agreements, City-owned pond modifications, and construction of the RD-1 Basin would cover this gap.

Of the recommended storm water quality control measures shown in Table 5, obtaining pond maintenance agreements is the most cost-effective because there is no construction involved. Modifying the three City-owned detention basins would be the next most cost-effective because construction costs should be minimal. The relative cost-effectiveness of the remaining wet detention facilities must be determined using the results of the next pollutant loading analysis, and estimated land acquisition and construction costs.

According to the Department of Natural Resources (DNR), an updated version of the SLAMM model will be available in the near future. This version will include an enhanced method for simulating the effectiveness of grass swales. Since about 90 percent of the City's developed urban area is served by grass roadside swales, it is recommended that another pollutant loading analysis be completed using the new version of SLAMM to confirm the gap between the City's current level of TSS reduction and the 40% reduction requirement.

Under the future pollutant loading analysis, the precise boundary of the City's developed urban area must first be determined. The developed urban area is the portion of the City for which a 40% reduction in TSS must be achieved by 2013. In general, the developed urban area is defined as that portion of the City with an average density of 1,000 people per square mile or greater, based on the latest decennial census made by the United States census, as well as any commercial and industrial areas contiguous to these areas.

6.3 2020 COMPREHENSIVE PLAN

The City of New Berlin's 2020 Comprehensive Plan identifies policies for land use. Map 6 identifies five areas that have unique characteristics. The City shall develop storm water management plans for these areas.

Commercial Center West

The Commercial Center West area is bounded by Moorland Rd to the west, Coffee Rd to the north and National Ave to the South/East. This area is zoned commercial but the current use is residential. This area poses significant challenges for storm water management as it is bounded by two County highways and therefore discharges to County storm sewer systems. The Waukesha County storm sewer system was not designed for future land use. Also, with existing residential development to the north and commercial development to the south, west and east there is limited space for large-scale BMPs. Therefore, alternative BMPs will need to be applied in a systematic approach.

Chapter 15 – Neighborhood E of the 2020 Comprehensive Plan identifies development policies for the neighborhood. The policy related to storm water is listed below.

1. Develop storm water management guidelines to address the development and/or redevelopment of properties that are served by the Waukesha County storm sewer conveyance system. This is needed due to the fact that Waukesha County has stated that there is no capacity in the existing storm sewer conveyance for additional flows.

In order to enforce these policies a Storm Water Management Plan shall be developed. The plan shall incorporate the policy as stated above to effectively manage storm water.

Westridge Expansion #1 - #4

The 2020 Comprehensive Plan – Future Land Use Plan shows several parcels changing to Business Park/Industrial (see Map 6). The parcels are located adjacent to Westridge Industrial Park. The 1995 Westridge Storm Water Management Plan (WSMP) addressed the needs of storm water for the industrial Park. The WSMP did not include the parcels added under the 2020 Comprehensive Plan.

Chapter 17 – Neighborhood G of the 2020 Comprehensive Plan identifies development policies for the neighborhood. The policies as they relate to storm water are listed below.

1. Encourage a three-dimensional approach for storm water best management techniques for improving the quality of groundwater and surface water.
2. Any development applications shall adhere to the design considerations outlined as part of the Neighborhood "G" Area Site Tour section. *(Understand the natural lay of the land, current drainage ways, opportunities for alternative storm water management techniques, and impacts from adjacent properties.)*
3. Encourage green / sustainable / LEED's building and site development techniques for new development as outlined in this Plan.
4. Require coordinated, pre-planned concepts/development proposals to ensure a cohesive and coordinated development pattern. Developments must take into consideration how adjacent parcels would be developed.

Chapter 18 – Neighborhood H of the 2020 Comprehensive Plan identifies development policies for the neighborhood. The policies as they relate to storm water are listed below.

1. Require alternative storm water management techniques, both regional and site specific.
2. Encourage green / sustainable / LEED's building and site development techniques for new development as outlined in this Plan.

In order to enforce these policies an Update to the 1995 Westridge Storm Water Management Plan shall be prepared. The Update shall incorporate the policies as stated above to effectively manage storm water.

Table 5

Recommended Storm Water Management Plan - Year 2009

Year 2000			Year 2009		
Recommendation		Description	New or Modified Recommendation	Description	Incremental % TSS Reduction
Water Quality Control					
1	Develop in Accordance with the Zoning Map	The change from existing due to future land use, based on the zoning map.	Comprehensive Plan Implementation	Develop land in accordance with the 2020 Comprehensive Plan.	To be determined
2	Adopt and enforce storm water ordinance	The draft storm water ordinance requires new development to provide storm water quality.	Enforce storm water ordinance	--	NA
3	Industrial Best Management Practices	Industries regulated by NR216 are required to implement best management practices. Additionally, industries which are potential significant pollutant contributors should implement applicable suggested best management practices.	Obtain a copy of each industry's annual report to the Wisconsin DNR.	--	NA
4	Roadway Pavement Sweeping	Arterials and Industrial Park Area: Seasonal sweeping program (weekly from April through May, bi-weekly June through August, monthly September through November and during March.	No change	--	NA
5	Ice Management Practices	Implement improved salt distribution methods, train personnel involved with salt distribution.	No change	--	NA
6	Catch Basin Cleaning/Retrofit	Clean catch basins twice per year/ install catch basins in new development or redeveloping areas which will be served by storm sewer.	No change	--	NA
7	Landscape Practices	Implement environmentally friendly landscape practices in institutional yards, park areas, school yards, city building yards, and vegetated median strips.	No change	--	NA
8	Snow Storage Practices	Locate snow storage areas in well vegetated area at least 200 feet from a drainage way or storm sewer inlet	No change	--	NA

Table 5 - Continued

Year 2000			Year 2009		
Recommendation		Description	New or Modified Recommendation	Description	Incremental % TSS Reduction
Water Quality Control (continued)					
9	Erosion Control Ordinance	Increase the construction site inspection program and train inspectors on erosion control techniques.	No change	--	NA
10	Agricultural Practices	Encourage use of Agricultural BMPs such as conservation tillage and adopt a shoreline management ordinance.	No change	--	NA
11	Streambank Stabilization	Stabilize key stream banks as indentified in Section 7.	No change	--	NA
12	Public Education and Information Program	Provide information to the general public and industries on the Storm Water Management Plan.	No change	--	NA
13	Water Quality Detention Basin	Construct a water quality detention basin west of Kelly Lake.	No change	--	2.0%
14	Retrofit Wetland	Retrofit three prior converted wetlands into storm water treatment wetlands for highway runoff. Locations: north of I-43 west of Calhoun, north of I-43 west of Moorland, south of I-43 east of Moorland.	No change	--	2.0%
15	Retrofit Wetland	Retrofit one prior converted wetland within Basin 5A020 south of National Avenue east of Moorland.	No change	--	1.0%
16	Retrofit Wetland	Retrofit one prior converted wetland within Basin 3A060 north of College east of Small.	No change	--	0.2%
17	--	--	Pond Maintenance Agreements	Obtain maintenance agreements with additional private property owners of wet detention basins constructed prior to October 2004.	1.3%[1]

Table 5- Continued

Year 2000			Year 2009		
Recommendation		Description	New or Modified Recommendation	Description	Incremental % TSS Reduction
Water Quality Control (continued)					
18	--	--	Existing Pond Modifications	Modify the outlet control structures of three City-owned ponds to enhance TSS reduction (SP-2, Westridge, and Gatewood).	1.6%
19	--	--	Basin RD-1	Construct the proposed Basin RD-1 serving the Tess Corners watershed to provide wet detention	2.6%
20	--	--	Fieldpointe Outlot 1 Pond	Convert this existing dry detention basin to a wet detention basin.	1.0%
Drainage and Flood Control					
1	Underwood 1 Detention and Conveyance Capacity	Reduce flow with upstream storage recommended as part of UNDERWOOD 2a, increase conveyance capacity of the storm sewer entrance, including a sloped trash rack which is less susceptible to debris clogging.	NA	Completed in 2007 as part of U-331 Project. New trash rack installed.	NA
2	Underwood 2A Detention	30 acre-foot storage facility located north of Greenfield Avenue in the City of Brookfield. Also provides necessary storage for Problem UNDERWOOD 1.	See Table 6	Greenfield has no plans to construct.	NA
3	Underwood 2B Detention	Additional 60-inch storm sewer to serve Gatewood Park Area.	NA	Completed in 2004 – U-307 Gatewood Storm Sewer Project	NA
4	Root 1	Installation of new culvert at Graham Street and channel expansion between Graham Street and Elm Grove Road.	See Table 6	See Table 6	NA
5	Root 2	Online detention storage at four locations in the area and floodplain lowering.	See Table 6	See Table 6	NA

Table 5- Continued

Year 2000			Year 2009		
Recommendation		Description	New or Modified Recommendation	Description	Incremental % TSS Reduction
Drainage and Flood Control (continued)					
6	Root 3	Replace culverts at St. Mary's Drive and lower floodplain south of Grange Ave.	See Table 6	See Table 6	NA
7	Root 4	Regrade roadside and railroad ditches in the area.	See Table 6	See Table 6	NA
8	Deer 1	Reconstruct ditches with some segments of storm sewer from Fullerton to Roosevelt. Also redirect sump pumps to lawn areas rather than direct discharge to the drainage ditches. Clean debris from ditches and culverts.	NA	Completed in 2005 in U-305 Buena Park Storm Water Improvement Project. Sump pumps not re-directed.	NA

[1] Based on obtaining maintenance agreements for wet detention basins serving a total of 200 acres of high density residential land at 80% TSS reduction.

Map 4

Recommended Storm Water Management Plan - 2009

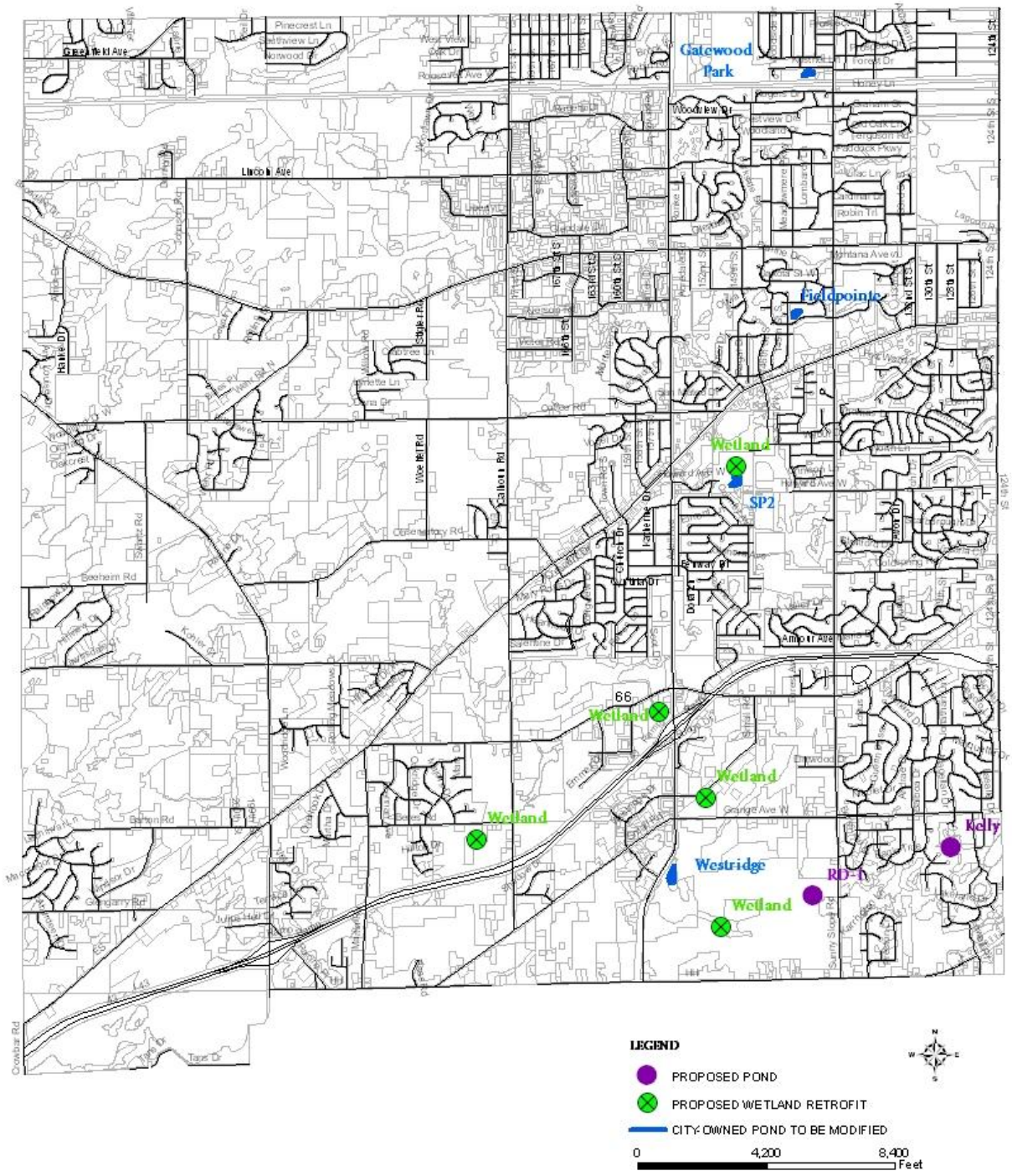


Table 6

Current Flooding and Drainage Issues

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
F	7	CALHOUN	00-CN-RD-01	2000 SWMMP Poplar Creek Minor Drainage (Calhoun not Poplar)- Sediment and debris blockage at Calhoun Road and Salentine Drive, Calhoun Road near Homestead and Salentine Farm field flooding and Farm Ditches backing up drainage into Area Ditches	Evaluate downstream ditches for blockages	RD
I	4	CALHOUN	09-CN-LF-01	Racine Place Storm Sewer - Undersized Storm sewer running under building with no City easement, causing frequent road flooding and yard flooding.	Upsize storm sewer. Waiting on easement, Requires DNR permit.	LF
I	4	CALHOUN	09-CN-RD-01	Small Road West of Calhoun Rd – inadequate conveyance system West to cross culvert, primarily North side of street.	Ditching (600 ft) & driveway culverts	RD
I	4	CALHOUN	09-CN-RF-01	Beres Road near Calhoun – Calhoun Creek Flooding – Experienced Road Flooding June 2008 and 2009.	Survey completed with road project, evaluate alternatives	RF
I	4	CALHOUN	09-CN-RF-02	Beres Road near Martin Road repeated flooding and flat elevations, Martin Road, National Avenue to Beres Road – Inadequate Conveyance System-Experienced Road and Yard Flooding and Septic System Saturation June 2008 and 2009 (currently included in Road Project for Martin Road)	Survey completed with road project, evaluate alternatives.	RF
A	3	DEER	09-DR-LD-01	Brook Ridge Condo flooding/Robin Road Storm Sewer pipe – condo flooding 2008 and 2009	Working with condos for solution to connect open pipe to inlet, possible ditching in easement	LD

Table 6 Continued

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
F	5	DEER	09-DR-RD-01	Deer Creek Stabilization and remove debris and potential blockages – Regal Drive area	May require DNR permit, no flooding at this time (4190 & 4210 Regal Dr)	RD
F	5	DEER	09-DR-RD-02	Drainage through EHS property to Deer Creek backing up into Sun Valley resident easements	May require DNR permit, coordination with EHS	RD
C	2	DEER	09-DR-RF-01	Industrial Park Area Flooding – Experienced June 2008 and June 2009	Investigate	RF
D	2	DEER	09-DR-RF-02	152nd Street Ditching South of Cleveland Avenue, West side – Repeated Basement Flooding	Ditching entire length of 152nd (1200 ft) and driveway culverts, WE Energies poles will need to be moved	RF
B	7	POPLAR	09-PR-LF-01	Observatory Road at Woefel Road Storm Water Conveyance	Easement Required	LF
A	3	POPLAR	09-PR-RD-01	Finish Buena Park ditching/concrete invert installation in the Poplar creek watershed area.	Balance of Buena Park was completed under DEER 1 from 2000 SWMMP. This portion was not completed because it flowed to Poplar Creek. Investigate current need.	RD
B	7	POPLAR	09-PR-RD-02	Observatory Heights Conveyance issues and Floodplain Concerns	Along north boundary of subdivision, Poplar Creek sediment and debris causing road & yard flooding, requires DNR permit	RD

Table 6 Continued

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
B	7	POPLAR	09-PR-RD-03	Coffee Road from Calhoun Rd to Top O' Hill - frequent yard & road flooding	Investigate detention or retention on Coffee Road to alleviate backyard flooding & improve water quality, Facility may be required with Coffee Rd reconstruction dependent on WDNR requirements.	RD
A	3	POPLAR	09-PR-RF-01	Flooding at East Lane and Woodlawn Area (along West Lane northwest to Woodlawn to easement) – Experienced Basement Flooding June 2008 and 2009.	Evaluate flows & capacities, easement needs ditching and possible concrete invert, debris removal downstream of easement	RF
C	2	POPLAR	09-PR-RF-02	Victor Road – Frequent Road and Easement Flooding (floodplain)	Investigate (16900 Victor Rd)	RF
D	1	ROOT	00-RT-LF-01	2000 SWMMP ROOT 1 - One residence experiences flooding along Park Avenue due to inadequately sized downstream culvert at Graham Street. Also, inadequate drainage ditch capacity exists between Elm Grove Road and Honey Lane south to the golf course.	Evaluate Installation of a new culvert at Graham St and Park Ave and channel expansion between Graham St and Elm Grove Rd. (13010 W Park Ave)	LF

Table 6 - Continued

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
D	1	ROOT	00-RT-RF-01	2000 SWMMP ROOT 2 - Root River: 132nd Street North to Lagoon Road Heading East Along Cleveland Avenue and South through 124th Street. Experienced flooding 2008 and 2009.	130th, 128th & 124th St experience flooding from stream, no recent reports of flooding along Lagoon Rd, cooperating with West Allis for 124th St cross culvert clean out	RF
D	1	ROOT	00-RT-RF-02	2000 SWMMP ROOT 4 - Root River: Honey Lane South of RR Tracks and Along Elm Grove Road. Experienced Basement Flooding June 2008 and 2009.	Investigating drainage areas, attempting coordination with railroad to regain ditch capacity along railroad	RF
D	2	ROOT	00-RT-RF-03	2000 SWMMP Upper Root River Minor Drainage - Parkwood Lane Flooding (study completed/minor safety repairs)	Needs to be re-evaluated because it may have been resolved	RF
F	4,5	ROOT	00-RT-RF-04	2000 SWMMP ROOT 3 - Root River tributary from Marin Way at the North, South to Cherry Tree, Grange Ave, and along Francis Avenue to Upper Kelly Lake - Experienced Road Flooding and Yard Flooding June 2008 and 2009. St. Frances and St. Mary Drive Flooding and stream bank Erosion.	Easements from Cherry Tree to Grange Avenue need re-grading. Multiple issues relating to conveyance system and Lake Elevations.	RF
D	1	ROOT	09-RT-LF-01	Cleveland Avenue South of Golf Course – Experienced yard and basement flooding June 2008 and 2009	Investigate possibility of detention on golf course to better direct flows (13000 & 12990 Cleveland)	LF
D	1	ROOT	09-RT-LF-02	13255 Old Oak Court Repeated Flooding Damage – Repeated Basement Flooding	Evaluate alternatives	LF

Table 6 - Continued

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
F	6	ROOT	09-RT-LF-03	North Lane easement Storm Sewer extension to resolve flooding	Contract documents complete, waiting to bid	LF
F	6	ROOT	09-RT-LF-04	Morningview Court to Coldspring Rd: Basement Flooding.	Storm sewer extension required. Needs formal plans and contract documents.	LF
F	6	ROOT	09-RT-LF-05	Wildcat Creek North of Howard avenue, W of 124th. Culvert across 124th street –flooding and stream bank erosion. Experienced Yard flooding June 2009.	Investigate culvert	LF
F	6	ROOT	09-RT-LF-06	Russell/Hickory to 124th - Experienced Basement Flooding 2008 and 2009	Investigate storm sewer pipe integrity and capacity	LF
D	2	ROOT	09-RT-RF-01	Lincoln Avenue Storm Sewer Capacity between Woodshire and Sunny Slope Rd.	Study completed, evaluate alternatives	RF
D	2	ROOT	09-RT-RF-02	Woodshire Ditch Easement Backup (related to Lincoln Avenue Storm Sewer) – Experienced Flooding 2009	Possible relation to pond outlet structure modification	RF
D	2	ROOT	09-RT-RF-03	Overland Trail/Lilac Lane Flooding – Experienced Basement Flooding June 2008 and 2009	Study completed, evaluate alternatives	RF
D	1	ROOT	09-RT-RF-04	124th St - Root River @ golf course and south along 124th - Road & Yard Flooding	Investigate drainage areas, contours & culverts	RF
E	2	ROOT	09-RT-RF-05	Drainage from National Ave north along 145th St to Oklahoma Ave - Experienced yard and basement flooding 2008-2009	Evaluate conveyance system	RF

Table 6 - Continued

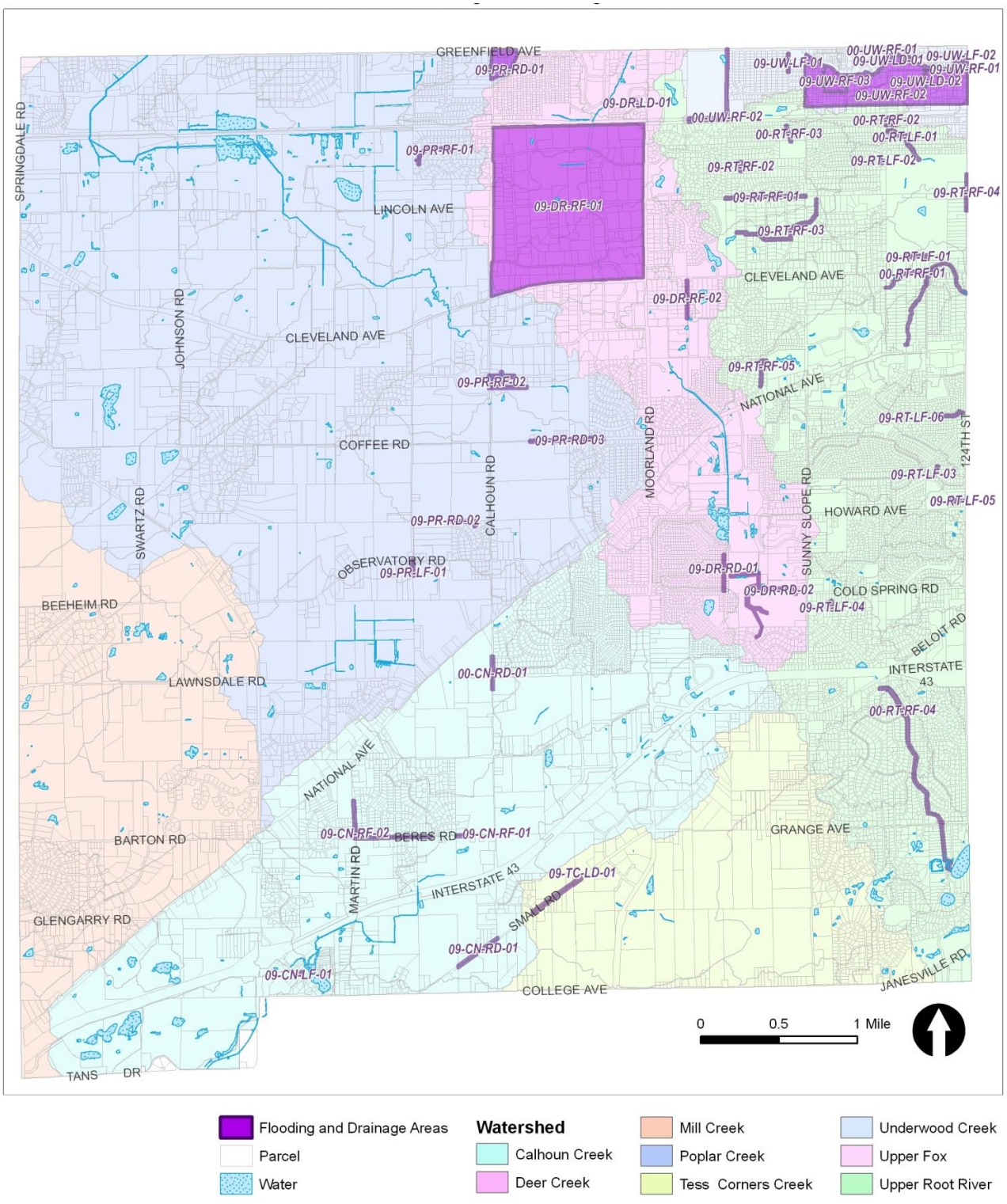
COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
I	4	TESS CORNERS	09-TC-LD-01	Small Road west of Moorland – Inadequate Conveyance system – Experienced Yard and Road Flooding June 2008 and 2009. Also maintenance issues caused by road work.	Evaluation ditches (1000 ft) and cross culverts	LD
A	1	UNDERWOOD	00-UW-RF-01	2000 SWMMP Underwood 2a: Flooding along Underwood creek and D/S of Box Culvert (Meadow 128th-124th) Experienced Basement Flooding 2008 and 2009	30 acre-ft facility in Brookfield, Brookfield does not have plans to construct this facility in the near future. See 09-UW-RF-01 for New Berlin options.	RF
A	1	UNDERWOOD	00-UW-RF-02	2000 SWMMP Underwood Creek Minor Drainage: Sherwood Drive from Highland Memorial Park Cemetery – Experienced Basement Flooding 2008 and 2009	Currently assessing condition of the pipe that runs between the cemetery and west property lines of Sherwood Dr. & piped discharge from RR to cemetery	RF
A	1	UNDERWOOD	09-UW-LD-01	Deteriorated Asphalt Invert: Ditches along Meadow Lane, Conrad to 124th street	Evaluate alternative ditch and inlet configurations	LD
A	1	UNDERWOOD	09-UW-LD-02	Deteriorated Asphalt Invert: Ditches along Conrad Place Meadow to South	Evaluate replacing with natural plantings and grade control structures	LD
A	1	UNDERWOOD	09-UW-LF-01	Ranch Road North of Prospect Pl - storm sewer designed as part of Gatewood but not installed.	Investigate need	LF
A	1	UNDERWOOD	09-UW-LF-02	Backyard north of meadow, west of 124th St	Evaluate installation of field inlets	LF

Table 6 - Continued

COMP NBRHD	District	Watershed	Name (year-watershed-category-number)	Current Storm Water Issue Description	Notes	SW CAT
A	1	UNDERWOOD	09-UW-RF-01	Flooding along Underwood creek and D/S of Box Culvert (Meadow 128th-124th) Experienced Property Damage and Losses Flooding 2008 and 2009	Analyzing Storage Facilities and Existing system retrofits in New Berlin. Previous recommended storage in Brookfield, see 00-UW-RF-01.	RF
A	1	UNDERWOOD	09-UW-RF-02	Old areas of Storm Water running through yards, old pipes and obstructed ditches coupled with back yard drainage issues. Basement Flooding experienced 2008 and 2009. Preliminary list of known areas is listed below: 13701 W. Prospect Drive/13600 block – drainage from South 12400 block between Forest and Prospect Drive – old buried pipe (12425 Prospect Dr) 12500 blk btwn Prospect Drive and Meadow lane box culvert 12519 Forest Dr – drainage from South 12900 blk between Prospect Drive and Forest Drive Meadow Lane to Prospect Drive, West of Conrad Place 1517 S. 124th Street – basement flooding from West 2008 and 2009	Research history of pipes, easements, televise pipes, investigate alternatives	RF
A	1	UNDERWOOD	09-UW-RF-03	Prospect Drive to Creek through Milton Court – Basement flooding 2008 and 2009	Evaluate alternatives (U-366)	RF

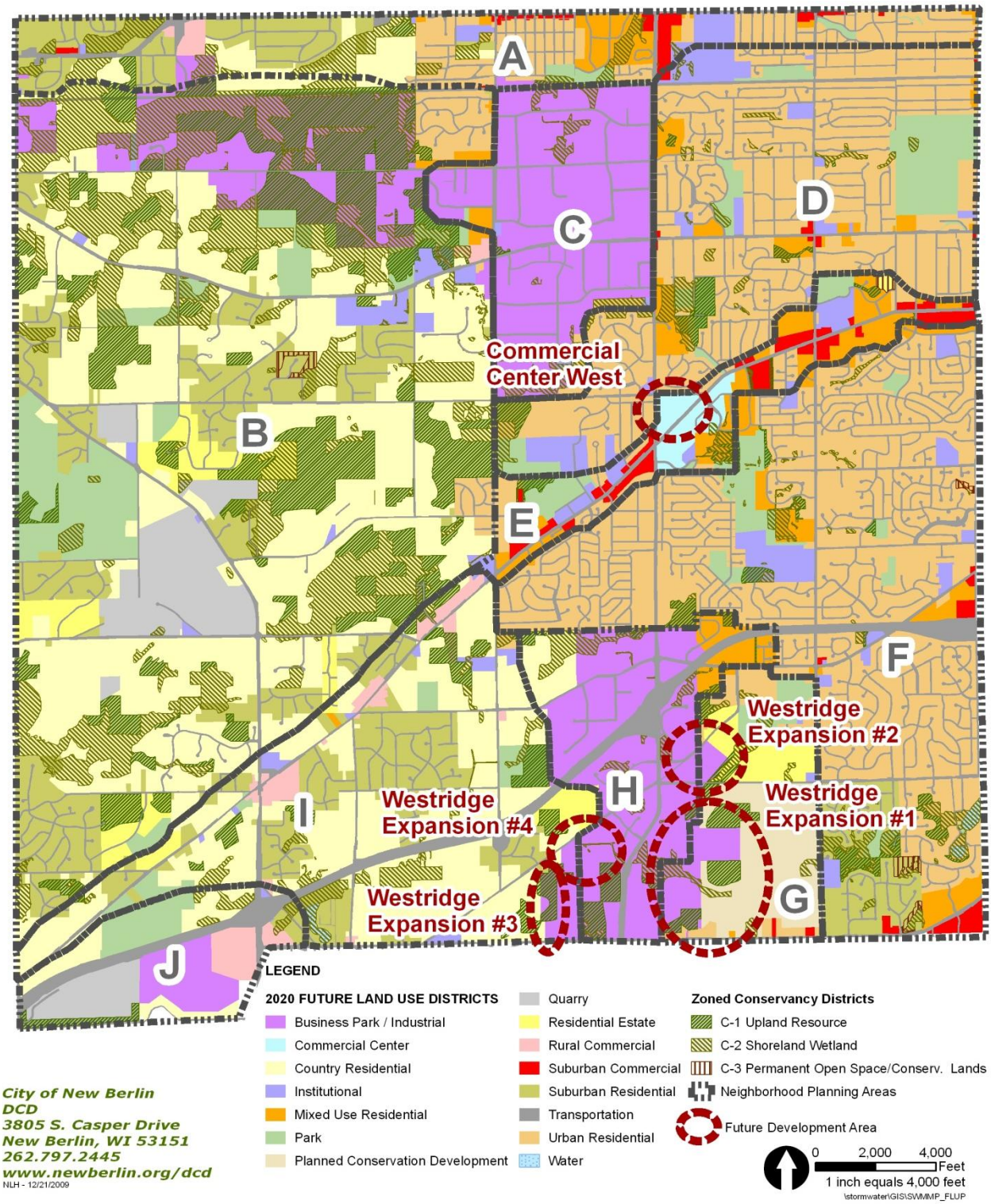
Map 5

Current Flooding and Drainage Issues



Map 6

Areas with Specified Land Use Policies



7.0 FUNDING AND FINANCING OPTIONS

A number of funding and financing options are potentially available to the City of New Berlin for storm water system operations and future public works projects. In almost all cases, moneys for new construction would have to come from a mix of more than one originating source, particularly since the City's storm water utility fees are not sufficient to cover annual operating expenses as well as capital project costs, a situation typical for most municipalities. Furthermore, State and Federal grants normally require matching contributions from local government grantees' funds. In other instances, private contributions usually provide only part of the funding mix, particularly in instances when demand and capacity sharing of new facilities is considered.

7.1 FUNDING OPTIONS

A wide range of direct funding options are available to the City of New Berlin for the construction of storm water system improvement projects including:

Storm Water Utility Fees: The City of New Berlin already has implemented a Water Resource Management Utility for the purpose of partially funding its storm water system needs. At their present rate however, these funds are not sufficient to cover any sizable capital program in addition to annual operation and maintenance expenses. Since the utility rate structure is not in any way indexed to future inflation, this fund's ability to cover system expenses will diminish over time, unless adjusted accordingly.

General Revenues: Typically the largest source of funding available in local government budgets, but its use is always in competition with other services – such as police, fire, parks, administrative duties, and many others. These funds mostly come from property taxes, sales taxes and State revenue sharing moneys.

Public-Private Partnerships: Private sector participation in project funding can take many forms, particularly when local developers are eager to ensure projects are completed to particular schedules. The most common and long-standing form of contribution occurs when infrastructure is designed and constructed by the developer (to government standards) and then donated to the government for use by the general public. This is the case for dedicated street, water, sewer and storm water construction in residential subdivisions, but this model can be used to good effect in larger and more complex developments as well. At its simplest, a developer contribution may consist of private land contributed for easements and/or rights-of-way.

Public-private partnerships in recent years have taken the form of much more complex arrangements including joint development of infrastructure, privately-managed public services, and even privately-owned facilities built for use by the public, all of which require properly negotiated agreements. These agreements can include responsibilities for the developer building extensive project components away from the private development site – so-called "off-site" requirements.

Regulatory Requirements: By properly enacting and enforcing building codes, zoning ordinances, maintenance requirements and other laws affecting development of private property, local governments can stretch capital funds by requiring the assistance of property owners adjacent to or substantially relying on public infrastructure. Off-site infrastructure capacity enhancements, and even partial right-of-way maintenance requirements have been used for many years to reduce tax burdens.

Tax Increment Financing (TIF): Storm water infrastructure required for the advancement of known private development(s) can be funded from the future increased tax revenue stream by the creation of a TIF. To be successful, TIF's require a predictably secure stream of new tax-paying private property construction.

Special Assessment: Capital improvements benefiting a particular group of property owners can be funded – in whole or part – with tax assessments, which must be calculated based on the benefit derived by each affected property owner.

Impact Fees: Capital improvements made necessary by the demands of new community growth can be funded – usually only partially – by special taxes levied at the time of the new private construction as calculated on the basis of added demand. Wisconsin state law allows municipalities to enact impact fees to pay for many different categories of public works projects including "facilities for collecting and treating storm and surface waters." Of course, new growth in the private sector is necessary to provide these funds.

Storm Water Grants: The Wisconsin Department of Natural Resources administers two very attractive, but highly competitive, grant programs specifically targeted to storm water and wastewater capital projects:

- Urban Nonpoint Source & Storm Water Management (UNPS&SW) Grants
- Targeted Runoff Management (TRM) Grants

As with most State and Federal grants, these funds are strictly limited to eligible government entities and specific types of projects. The City of New Berlin could meet these requirements for some probable future projects, but would still need to apply early in the State's application cycle in this highly-competitive selection process.

Special Project/"Earmark" Grants: Project-specific State and especially Federal funding is available every fiscal budget year for projects sponsored by elected representatives in Madison and Washington, DC. During slow times in the national economy, funds available from such sources can actually be increased by the Federal government through economic stimulation efforts. The most successful projects usually represent more than simple infrastructure needs and address solutions to environmental, social and/or economic development issues as well, especially if standard existing grant moneys are not otherwise available or sufficient to fully fund the project.

7.2 FINANCING OPTIONS

It is important to note that "funding" capital projects is not the same as "financing" capital projects. "Funding" refers to the origin of moneys ultimately used to pay for a project, such as taxes, user fees, grants, contributions, etc. "Financing" refers to the method in which these funding sources are collected over time, and put to use on a project requiring a large amount of capital at one time.

Financing methods can include bonds, loans or other commitments, which in turn can be paid by any number of funding sources. Potential financing options generally include the following:

Pay As You Go: For governments with sufficiently large annual cash revenues and comfortable reserves, moneys taken directly from current income streams may be used for smaller projects. In other words, "pay as you go" financing requires no debt at all.

General Obligation (GO) Bonds: GO bonds are the traditional standard for financing non-revenue generating improvement projects, against which all other options should be weighed. Normally long-term (20-year) debt, GO bonds are repaid from general revenues as secured by the "full faith and credit" of the issuing government. Interest rates are determined by two factors: market rates, and the government's ability to repay the debt as measured by its credit rating.

Revenue Bonds: In contrast to GO bonds, revenue bonds are repaid from and are secured by a specific dedicated revenue stream (such as the City of New Berlin's utility fees), typically derived from a standing enterprise fund (such as the City of New Berlin's Water Resource Management Utility). Interest rates are largely determined by the stability and security of this specific revenue stream, as well as by market rates. Revenue bonds can also be backed by the full faith and credit of the issuing government (as are GO bonds) in addition to the dedication of revenues, a practice which can increase the debt's overall security and hence decrease the interest rate.

Government Loans: An important potential low-interest loan source is the State of Wisconsin Department of Natural Resource's Clean Water Fund Program (CWFD). Funds in this program originate from the Federal government's Clean Water State Revolving Fund (CWSRF). Due to continually decreasing funding levels, these loans, while desirable avenues for financing, have become increasingly competitive. In addition, project eligibility requirements and application procedures are both strict and detailed.

Private Loans: Private banks and other institutions are reasonable sources for short-term debt for public improvements, especially at the local community-based level. Typically, these loans are used as part of a broader financing strategy to leverage and/or bridge other longer-term mechanisms such as 20-year bonds.

Lease Back Agreements: Options to finance projects through private sector resources are increasingly widely available, particularly when combined with other public-private initiatives.

Energy Savings Guarantee Agreements: While not directly tied to storm water programs, per se, local governments may find new capital funds for any discretionary use with the implementation of energy savings contracts written for aging public buildings and other facilities. Through a properly structured contract, these new funds can be used for a wide variety of the City's needs, including its Water Resource Management Utility capital program.

7.3 COMBINATION FUNDING OPTIONS

Savings Through Synergy: Many municipal public works improvement projects involve work on several different elements as part of the same construction contract. For example, a well-planned street pavement replacement project can (and perhaps should) also include repair, replacement and/or upgrade of water lines, sanitary sewers, storm sewers, private utilities, curbs, gutters, sidewalks, trees, etc., etc. In other examples, private construction can provide opportunities to upgrade and repair public utilities beyond that needed and funded by the new private development. In short, many construction dollars can be saved by this synergistic approach, through reductions inherent in shared construction mobilization, the low marginal cost of upsizing facilities, as well as avoided pavement cuts, to name a few areas of cost savings.

Funding at the Margin: In addition to overall project savings, fundable capital funds can be used for core project elements, while more limited sources of capital funds can be used for secondary project elements. In the most common example, a full street reconstruction project would typically include some level of work on the storm water system as a necessary element. Additional storm water system work, say increasing the capacity of the system, can be added to the primary street project at only the marginal increase to the overall project cost – much less expensive to the Water Resource Management Utility Fund than if the storm water project where undertaken solely by itself.

Federal grants for transportation projects, while still acutely competitive, can usually be relatively easier to find than moneys for storm water projects. Required local matches for these grants may come from many eligible sources including transportation funds, general funds and even utility funds (if used for utility work as part of the same project).

Alternative Funding Sources: For storm water projects being contemplated for more than one public benefit, even more grants are potentially available. If the project – perhaps as part of a larger effort – serves the grander purposes of job growth, economic development or brownfield redevelopment, it could be eligible for these large Federal programs, to name just some of the largest:

- Economic Development Initiatives (EDI) – for downtown revitalization, planning studies, streetscapes, etc.
- Community Development Block Grant (CDBG) – a long standing program for urban redevelopment with a wide range of potential uses including

infrastructure improvements. Typically, these funds would have to be reallocated by the receiving city if used for new purposes.

- EPA Brownfield Grant – for projects built on and remediating existing brownfield sites.

7.4 SUMMARY

Any of these funding sources and financing mechanisms are potentially available to the City of New Berlin for its future Water Resource Management Utility capital program, but most would require the City to fully develop comprehensive, formal planning documents specifying required projects in detail. This is particularly true in order to win competitive grants and/or loans from the State of Wisconsin, as well as selling capital bonds. The agencies responsible for these financing methods have strict requirements for information to support the City's need for each project and its ability to repay. In addition, an analysis of each of the above option's best application – a "pros" and "cons" comparison – requires a comprehensive capital improvement plan in order to estimate the detailed needs of any future storm water program, as well as the best fit for specific types of available funding.

8.0 IMPLEMENTATION SCHEDULE

The City's storm water management program consists of three components: (1) Regional Flood Abatement, (2) Drainage List, and (3) WPDES Permit Compliance. Implementation of projects under each program component, along with the projected cost, is described below.

Regional Flood Abatement
The resolution of large scale regional flooding issues will require the allocation of CIP funds. The average cost of such projects is $2,500,000. Many projects were completed from 2003 to 2005 which resolved historical flooding issues: Gatewood Subdivision, Buena Park Subdivision, SP-2 Pond, and Malone Park Underground Storage. There are many projects that are left to be completed to achieve the City's goal of proactive storm water management, with the top priority projects being Underwood Creek, Honey Lane/Elm Grove Rd/Railroad and Overland Trail/Parkwood Lane/Lincoln Rd.

Drainage List
As part of the 2010 budget, funds were requested to contract out a portion of the Drainage List projects. The dedication of these funds for contract work will decrease the current Drainage List project backlog from six years to four years. The plan is to continue contracting out the backlog of projects until a one-year backlog is achieved. This process will take at least four to five years at the current funding level of $100,000 per year. A total of approximately $1,000,000 would be required to complete the entire drainage list at this time. The detailed construction costs associated with the Drainage List projects are shown in Table 7.

WPDES Permit Compliance
Although the above projects are important, the City must meet the requirements of its WDNR Municipal Storm Water Discharge Permit, the most expensive of which is the 40% reduction in total suspended solids by 2013. The estimated cost to implement the water quality control projects recommended under this Master Plan update and achieve the 40% TSS reduction level by 2013, is $500,000.

A proposed funding schedule for the City's storm water management program is shown in Table 8. The revenues and expenditures shown for the Storm Water Utility are based on:

- Annual inflation rate of 5%
- No increase in Storm Water Utility fees
- $100,000 per year toward Drainage List projects
- $500,000 per year in capital contributions beginning in 2010

Based on these assumptions, the net receipts would allow implementation of the recommended water quality control projects for WPDES Permit Compliance, and expenditures of at least $800,000 per year toward implementation of Regional Flood Abatement projects.

Table 7

Estimated Construction Cost to Correct

Current Flooding and Drainage Issues

Item	Unit	Quantity	Cost Per Unit	Total
Grade Ditch	FT	14,600	$35.00	$511,000.00
Blow out Driveway Culverts	EA	89	$500.00	$44,500.00
Replace Driveway Culvert	EA	15	$2,600.00	$39,000.00
Asphalt Inv Removal, Grade, Install Concrete	FT	454	$45.00	$20,430.00
Grade and Install Concrete Invert	FT	200	$45.00	$9,000.00
Restoration - seed and erosion mat	SQ YD	16,950	$3.60	$61,020.00
Topsoil	SQ YD	16,950	$2.00	$33,900.00
Erosion Control	EA	87	$100.00	$8,700.00
Mobilization	EA	87	$500.00	$43,500.00
Traffic Control	EA	87	$250.00	$21,750.00
Mailbox, Traffic Sign Move/Replace	EA	40	$10.00	$400.00
				$793,200.00

Table 8

Funding Schedule for Recommended 2009 Storm Water Management Program

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate:	5.00
FY 2009 Additional O&M Funds:	$0
FY 2009 Charge Increase:	0%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$ 1,571,948	$ 1,593,294	$ 1,601,664	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	613,733	613,733	613,733	613,733	613,733	613,733
Additional "Catch-Up" O&M										
Depreciation	359,839	374,855	392,631	380,000	380,000	380,000	380,000	380,000	380,000	380,000
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	993,733	993,733	993,733	993,733	993,733	993,733
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	606,267	606,267	606,267	606,267	606,267	606,267
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,073	59,275	37,035	14,620	5,100	5,100
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	45,000	45,000	45,000	45,000	45,000	45,000
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	567,194	591,992	614,232	636,647	646,167	646,167
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	**$ 1,081,392**	**$ 267,438**	**$ 552,092**	**$ 544,349**	**$ 1,067,194**	**$ 1,091,992**	**$ 1,114,232**	**$ 1,136,647**	**$ 1,146,167**	**$ 1,146,167**

9.0 STORM WATER UTILITY ASSESSMENT

Storm Water Utility Fees: The City of New Berlin already has implemented a Water Resource Management Utility for the purpose of partially funding its storm water system needs. At their present rate however, these funds are not sufficient to cover any sizable capital program in addition to annual operation and maintenance expenses. Since the utility rate structure is not in any way indexed to future inflation, this fund's ability to cover system expenses will diminish over time, unless adjusted accordingly.

9.1 RATE STRUCTURE

Attached as Appendix B are City of New Berlin storm water utility revenues and expenditures, actual and forecast, for the fiscal years 2006 through 2015. Data for FY 2006 through FY 2008 are from the City's audited financial reports. The FY 2009 data is nine months actual and three months estimated by City staff.

This financial model includes input variables for calculating "what-if" scenarios regarding rates of inflation, one time capital expenditures, and hypothetical fee revisions. Forecasts for the period beginning FY 2010 are based on the assumptions and variables shown below.

Inflation Rate Variable: The annual inflation rate for future years can be adjusted to any percentage. The attached spreadsheets show the probable boundaries of 0% and 5%. Note that the forecast inflation rate used for this purpose should not be tied to the general U.S. economy inflation forecast; utility O&M expenses are heavily dependent on the cost of fuel, labor and labor benefits – including health insurance premiums – which can change very differently in comparison to other goods.

Variable for "Catch-Up" Maintenance: A line item is included in FY 2010 operating expenses for a one-time expenditure for the costs of addressing a current backlog of maintenance efforts. The attached examples show expenditures of $500,000, $1,000,000 and $1,500,000 in addition to average annual O&M costs. Per City staff, no storm water capital projects are planned for the foreseeable future, but this one-time expense is needed.

Variable for Service Charge: The spreadsheet includes a provision to test the effect of a blanket FY 2010 revision to the current service charge rate.

Growth Assumption: Growth in city-wide private property is not included in this model based on the gross and prudent assumption that any growth should be viewed as being able to pay for itself. In other words, increases in O&M expenditures would be offset by increases in service fees; increases in capital costs should be borne by the land developer.

Capital Financing: Traditional capital financing typically used for capital improvement projects can usually not be used for O&M expenditures, even for the one-time catch-up efforts envisioned. It is possible, however, to borrow on a short-term basis from other City funds (if available) or in the form of a loan note from a lending institution. (This model does not yet address the repayment of a loan over time, until other final options are identified.)

9.2 CREDIT SYSTEM

On August 14, 2001 the Common Council of the City of New Berlin adopted Ordinance No. 2147 which created the City's storm water utility. This ordinance also established a storm water service charge as a mechanism to fund – at least partially – operation, maintenance and needed improvements to the City's storm water infrastructure system.

Ordinance No. 2147 also called for the provision of adjustments to the storm water service charge for properties with storm water management facilities which:

1. Reduce the storm water runoff rate to the municipal storm water system.

2. Reduce the amount of pollutant loading to the municipal storm water system.

Storm water service charge adjustments for private properties with storm water management facilities addressing quantity and/or quality are typical for municipal storm water utility systems. The term "credit" is standard usage for this fee adjustment. The reasons to offer these credits include:

1. To provide incentives for private property owners to help the municipal government protect the environment, public health and local properties.

2. To ensure fairness in the storm water service charge fee structure, by not charging for storm water which isn't contributing to the City's cost of operating and maintaining utility infrastructure.

3. To avoid potential legal issues of charging full fees for arguably reduced services.

Total credits are limited to 50% of the established storm water service charge for any individual property; this limit is set in recognition of the City's fixed costs (paid even when it doesn't rain), as well as each citizen's responsibility to pay for the treatment of storm water flowing from public properties such as city streets, government buildings, and municipal parking lots.

The credit mechanism will not necessarily be cost effective for the storm water utility fund, in that realized cost savings from reductions in peak storm water flows and pollutants will most likely not equal total reductions in usable funds from service fees. Most costs required to construct, operate and maintain the City's utility systems are fixed, and won't be tangibly reduced with marginal reductions in demand. One must also consider the administrative costs of running the credit program. In general, administrative work will include:

- Public information about the program
- Application processing
- Engineering reviews
- Site inspections
- Storm Water Committee approvals

- Invoice revisions

An estimate of the net future financial impact of this credit is extremely difficult to determine, but would rely on forecasting the probable response of existing large property owners as well as future land developers. In turn, this exercise would require an assessment of industrial and commercial properties' and undeveloped properties' existing geographies with an eye toward potential Best Management Practices "fixes." Finally, the analysis would attempt to capture the net potential costs and benefits to property owners inherent in taking on such projects.

A draft resolution establishing criteria for the review of storm water credit applications is attached as Appendix B for the City's consideration. The process for reviewing, recommending and granting fee adjustments is contained in Ordinance No. 2147, and therefore not repeated in the resolution. It is important to stress, however, a clause in the original ordinance that is vital to keep in mind during the eligibility review of any credit application, specifically:

"No Adjustments shall be considered for structural or nonstructural Best Management Practices that are required in order to comply with any local, state, or federal regulation. . . "

This single eligibility rule, while certainly necessary, and clear in its intent and wording, will inevitably generate the most questions and dispute. Case in point: it is already difficult enough to interpret building codes for real-world practical applications with any level of exactness and universal consensus, but this clause adds further cost benefit to the land developer (beyond construction savings) to fuel this ongoing debate.

A draft application form consistent with the details recommended in the draft resolution is attached as Appendix C for the City's use. As drafted, this form gives background information about the program in sufficient detail to guide an applicant through the application process. The City, however, may also consider supplementing the application form with additional public information material explaining the "bigger picture:" overall rationale, background and supporting law behind the credit program.

The recommended eligibility criteria is performance-based, straightforward and simple by design with the following objectives in mind:

1. To be more easily understood by all parties involved – property owner as well as City staff;

2. To be less susceptible to multiple conflicting interpretations;

3. To minimize administrative costs without sacrificing customer service;

4. To allow the City Engineer flexibility to impart his best technical judgment to the wide range of solutions inevitably expected over time; and

5. To focus on ultimate goals and outcomes – specifically the reduction of peak flow, system costs and pollutants – not on the details of particular design approaches.

If adopted, there are many different possible methods of advertising the new storm water service charge credit program to developers, designers, property owners and the general public. Existing property owners who might consider retroactive corrections to be eligible for credits could be reached with traditional public information campaign methods: Council meeting announcements, public service notifications on cable television, newspaper publications, handout fliers, mail outs, City website, City newsletter, etc.

It should be noted that credit application review work for the first year following the enactment of the storm water utility ordinance will be of far greater volume than in future years. Through public information outreach efforts designed to solicit submittals from existing private properties eligible for credits, the City can expect that these applications should constitute the great majority of this one-year spike. In turn, most future applications will be for storm water facilities being considered for planned construction.

The on-going task of reaching developers of new properties with news of the credit program can be even easier if integrated into the City's current building and site permit process. The credit program's existence and eligibility requirements can easily be imparted and negotiated throughout the course of this discussion. A wide range of options are available to best enhance the tasks of distributing, collecting and processing storm water utility fee credit/exemption applications, with the goal of maximizing accuracy, cost efficiency as well as customer service. These include the possible creation of an internet-based application process, a more detailed comprehensive application form (than the one recommended here), a stricter set of technical criteria, among other measures. The best recommendation for procedure of processing future applications, however, is in fact very low-tech and inexpensive to implement.

The City's Engineering and Building Departments are currently responsible for the technical review of storm water management and erosion control measures to ensure compliance with code requirements. The City is already in extensive communication with design engineers, developers and property owners through all stages of the design process for any on-site storm water management facilities. For larger projects – which may enter into the realm of public-private partnerships involving shared responsibilities for the design and construction of storm water solutions – this contact is even more involved. This work includes design calculation confirmation, plan review and site inspection, but most importantly incorporates all of the elements necessary for the proper review of storm water utility fee credit applications.

Consequently, the most efficient possible notification to a property owner that they may be eligible for a fee credit is at the time building permits are being processed. (The responsibility of actually submitting an application to the City would remain with the property owner, per ordinance.) For larger, more complex projects, the designer can be notified about the program's possibilities

during the inevitable pre-permit-submittal review meetings.

Likewise, the most efficient time for City staff to formally review the eligibility of a storm water utility fee credit is when they are reviewing plans and sites for compliance with the erosion control, storm water management and/or building codes. To repeat, the technical review of calculations, plans and construction is the same for both processes.

The most significant task to implement this procedure for new construction is in training City staff to:

1. Informally discuss credit possibilities with developers and their designers during pre-permit discussions.

2. Formally hand out storm water utility fee program information and blank application forms informing property owners of fee credits, at the time building permits are being processed,

3. Include the task of verifying eligibility for storm water utility fee credits during the process of project erosion control, storm water management and building code compliance reviews, and

4. Properly process notifications to the City tax office to record the approved credit.

Of course, there are many, many variations in how Wisconsin municipalities currently handle the different aspects of their storm water utility programs, including the application of service fee adjustments. The recommendations in this report are based on interpretations of what should work best for the City of New Berlin understanding the nature of their existing storm water program. Virtually all elements of the recommended program are subject to revision through discussion and – after implementation – with experience.

APPENDICES

Appendix A
Pollutant Loading Analysis Spreadsheet

Existing Controls

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Calhoun Creek Watershed					
Residential	1,000	870	870,000		594,210
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
BMP					
Westridge					
(Residential Land use)	35	870	30,450	71%	8,831
(Institutional Land use)	36	2,050	73,800	71%	21,402
(Commercial Land use)	113	2,635	297,755	71%	86,349
(Industrial Land use)	229	2,915	667,535	71%	193,585
TOTAL	1,413		1,939,540		904,377
Deer Creek Watershed					
Residential	665	870	578,550		395,150
Institutional	355	2,050	727,750		497,053
Commercial	244	2,635	642,940		439,128
Industrial	120	2,915	349,800		238,913
BMP					
Lions Park					
(Residential Land use)	96	870	83,520	80%	16,704
Regal West					
(Residential Land use)	74	870	64,380	80%	12,876
Regulated Industrial Sites					
Milwaukee Chaplet and Mfg Company	0				
Wenthe Davidson Engineering Co	4				
Johnson Sand and Gravel	55				
Johnson Sand and Gravel	100				
Kholer Pit	119				
Industrial Towel	5				
Super Products	4				
Bodycote Thermal	3				
Spincraft	7				
Southwest Metal Finishing	3				
Durhan School	2				
Kard Recycling	2				

Appendix A - Continued
Existing Controls

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Deer Creek Watershed (Cont'd)					
Regulated Industrial Sites					
Starline Trucking	2				
Certified Products	4				
New Berlin Redi Mix	4				
ACS Group	3				
Fortress Mfg	1				
Fortress Forms	1				
Harder Industries	8				
Jorgensen Machining	5				
ABB Inc	4				
Falk Renew	1				
Schmidt Engineering	8				
Safety Kleen Systems	6				
Kopp Brothers	1				
FedEx Smart Post	16				
TOTAL	1,917		2,446,940		1,599,824
Mill Creek Watershed					
Residential	511	870	444,570		303,641
Institutional	4	2,050	8,200		5,601
Commercial	4	2,635	10,540		7,199
Industrial	0	2,915	0		0
TOTAL	519		463,310		316,441
Poplar Creek Watershed					
Residential	1,525	870	1,326,750		906,170
Institutional	179	2,050	366,950		250,627
Commercial	95	2,635	250,325		170,972
Industrial	2	2,915	5,830		3,982
Regulated Industrial Sites					
On Point Gravel Site	220				
Schmitz Redi Mix	4				
BT Mail Service	17				
TOTAL	2,042		1,949,855		1,331,751
Tess Corners Watershed					
Residential	294	870	255,780		174,698
Institutional	3	2,050	6,150		4,200
Commercial	16	2,635	42,160		28,795
Industrial	97	2,915	282,755		193,122
Regulated Industrial Sites					
Mexican Accent	3				
Precision Machining	2				
McKey Perforating	2				
TOTAL	417		586,845		400,815

Appendix A – Continued
Existing Controls

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Underwood Creek Watershed					
Residential	304	870	264,480		180,640
Institutional	77	2,050	157,850		107,812
Commercial	9	2,635	24,242		16,557
Industrial	0	2,915	0		0
TOTAL	390		446,572		305,009
Upper Fox River Watershed					
Residential	3	870	2,175		1,486
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
TOTAL	3		2,175		1,486
Upper Root River Watershed					
Residential	2,836	870	2,467,320		1,685,180
Institutional	94	2,050	192,700		131,614
Commercial	63	2,635	166,005		113,381
Industrial	0	2,915	0		0
BMP					
Gatewood Park (Residential Land use)	35	870	30,450	70%	9,135
Regulated Industrial Sites					
Fredrick Brothers Trucking	1				
Diameters	1				
Yaskawa Electric	3				
TOTAL	3,033		2,856,475		1,939,310

Total Reductions	No Controls Load (lbs/5 yrs)	2008 Reduced Load (lbs/5 yrs)	Removal Percentage
Calhoun Creek Watershed	1,939,540	904,377	53.37%
Deer Creek Watershed	2,446,940	1,599,824	34.62%
Mill Creek Watershed	463,310	316,441	31.70%
Poplar Creek Watershed	1,949,855	1,331,751	31.70%
Tess Corners Watershed	586,845	400,815	31.70%
Underwood Creek Watershed	446,572	305,009	31.70%
Upper Fox River Watershed	2,175	1,486	31.70%
Upper Root River Watershed	2,856,475	1,939,310	32.11%
TOTAL	10,691,712	6,799,012	**36.41%**

Appendix A – Continued

Modification #1 – Modify Existing City Wet Basins to 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Calhoun Creek Watershed					
Residential	1,000	870	870,000		617,700
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
BMP					
Westridge					
(Residential Land use)	35	870	30,450	80%	6,090
(Institutional Land use)	36	2,050	73,800	80%	14,760
(Commercial Land use)	113	2,635	297,755	80%	59,551
(Industrial Land use)	229	2,915	667,535	80%	133,507
TOTAL	1,413		1,939,540		831,608
Deer Creek Watershed					
Residential	307	870	267,090		189,634
Institutional	355	2,050	727,750		516,703
Commercial	244	2,635	642,940		456,487
Industrial	0	2,915	0		0
BMP					
Lions Park					
(Residential Land use)	96	870	83,520	80%	16,704
Regal West					
(Residential Land use)	74	870	64,380	80%	12,876
SP-2					
(Residential Land use)	358	870	311,460	80%	62,292
(Industrial Land use)	120	2,915	349,800	80%	69,960
Regulated Industrial Sites					
Milwaukee Chaplet and Mfg Company	0				
Wenthe Davidson Engineering Co	4				
Johnson Sand and Gravel	55				
Johnson Sand and Gravel	100				
Kholer Pit	119				
Industrial Towel	5				
Super Products	4				
Bodycote Thermal	3				
Spincraft	7				
Southwest Metal Finishing	3				
Durhan School	2				
Kard Recycling	2				
Starline Trucking	2				
Certified Products	4				
New Berlin Redi Mix	4				
ACS Group	3				

Appendix A – Continued

Modification #1 – Modify Existing City Wet Basins to 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Deer Creek Watershed (Cont'd)					
Regulated Industrial Sites					
Fortress Mfg	1				
Fortress Forms	1				
Harder Industries	8				
Jorgensen Machining	5				
ABB Inc	4				
Falk Renew	1				
Schmidt Engineering	8				
Safety Kleen Systems	6				
Kopp Brothers	1				
FedEx Smart Post	16				
TOTAL	1,917		2,446,940		1,324,656
Mill Creek Watershed					
Residential	511	870	444,570		315,645
Institutional	4	2,050	8,200		5,822
Commercial	4	2,635	10,540		7,483
Industrial	0	2,915	0		0
TOTAL	519		463,310		328,950
Poplar Creek Watershed					
Residential	1,525	870	1,326,750		941,993
Institutional	179	2,050	366,950		260,535
Commercial	95	2,635	250,325		177,731
Industrial	2	2,915	5,830		4,139
Regulated Industrial Sites					
On Point Gravel Site	220				
Schmitz Redi Mix	4				
BT Mail Service	17				
TOTAL	2,042		1,949,855		1,384,397
Tess Corners Watershed					
Residential	294	870	255,780		181,604
Institutional	3	2,050	6,150		4,367
Commercial	16	2,635	42,160		29,934
Industrial	97	2,915	282,755		200,756
Regulated Industrial Sites					
Mexican Accent	3				
Precision Machining	2				
McKey Perforating	2				
TOTAL	417		586,845		416,660

Appendix A – Continued

Modification #1 – Modify Existing City Wet Basins to 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Underwood Creek Watershed					
Residential	304	870	264,480		187,781
Institutional	77	2,050	157,850		112,074
Commercial	9	2,635	24,242		17,212
Industrial	0	2,915	0		0
TOTAL	390		446,572		317,066
Upper Fox River Watershed					
Residential	3	870	2,175		1,544
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
TOTAL	3		2,175		1,544
Upper Root River Watershed					
Residential	2,836	870	2,467,320		1,751,797
Institutional	94	2,050	192,700		136,817
Commercial	63	2,635	166,005		117,864
Industrial	0	2,915	0		0
BMP					
Gatewood Park (Residential Land use)	35	870	30,450	80%	6,090
Regulated Industrial Sites					
Fredrick Brothers Trucking	1				
Diameters	1				
Yaskawa Electric	3				
TOTAL	3,033		2,856,475		2,012,568

Total Reductions	No Controls Load (lbs/5 yrs)	2008 Reduced Load (lbs/5 yrs)	Removal Percentage
Calhoun Creek Watershed	1,939,540	831,608	57.12%
Deer Creek Watershed	2,446,940	1,324,656	45.86%
Mill Creek Watershed	463,310	328,950	29.00%
Poplar Creek Watershed	1,949,855	1,384,397	29.00%
Tess Corners Watershed	586,845	416,660	29.00%
Underwood Creek Watershed	446,572	317,066	29.00%
Upper Fox River Watershed	2,175	1,544	29.00%
Upper Root River Watershed	2,871,050	2,012,568	29.90%
TOTAL	10,706,287	6,617,449	**38.19%**

Appendix A – Continued

Modification #2 - R-D 1 Provides 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Calhoun Creek Watershed					
Residential	1,000	870	870,000		594,210
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
BMP					
Westridge					
(Residential Land use)	35	870	30,450	71%	8,831
(Institutional Land use)	36	2,050	73,800	71%	21,402
(Commercial Land use)	113	2,635	297,755	71%	86,349
(Industrial Land use)	229	2,915	667,535	71%	193,585
TOTAL	1,413		1,939,540		904,377
Deer Creek Watershed					
Residential	665	870	578,550		395,150
Institutional	355	2,050	727,750		497,053
Commercial	244	2,635	642,940		439,128
Industrial	120	2,915	349,800		238,913
BMP					
Lions Park					
(Residential Land use)	96	870	83,520	80%	16,704
Regal West					
(Residential Land use)	74	870	64,380	80%	12,876
Regulated Industrial Sites					
Milwaukee Chaplet and Mfg Company	0				
Wenthe Davidson Engineering Co	4				
Johnson Sand and Gravel	55				
Johnson Sand and Gravel	100				
Kholer Pit	119				
Industrial Towel	5				
Super Products	4				
Bodycote Thermal	3				
Spincraft	7				
Southwest Metal Finishing	3				
Durhan School	2				
Kard Recycling	2				
Starline Trucking	2				
Certified Products	4				
New Berlin Redi Mix	4				
ACS Group	3				
Fortress Mfg	1				
Fortress Forms	1				

Appendix A – Continued
Modification #2 - R-D 1 Provides 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Deer Creek Watershed (Cont'd)					
Regulated Industrial Sites					
Harder Industries	8				
Jorgensen Machining	5				
ABB Inc	4				
Falk Renew	1				
Schmidt Engineering	8				
Safety Kleen Systems	6				
Kopp Brothers	1				
FedEx Smart Post	16				
TOTAL	1,917		2,446,940		1,599,824
Mill Creek Watershed					
Residential	511	870	444,570		303,641
Institutional	4	2,050	8,200		5,601
Commercial	4	2,635	10,540		7,199
Industrial	0	2,915	0		0
TOTAL	519		463,310		316,441
Poplar Creek Watershed					
Residential	1,525	870	1,326,750		906,170
Institutional	179	2,050	366,950		250,627
Commercial	95	2,635	250,325		170,972
Industrial	2	2,915	5,830		3,982
Regulated Industrial Sites					
On Point Gravel Site	220				
Schmitz Redi Mix	4				
BT Mail Service	17				
TOTAL	2,042		1,949,855		1,331,751
Tess Corners Watershed					
Residential	294	870	255,780		51,156
Institutional	3	2,050	6,150		1,230
Commercial	16	2,635	42,160		8,432
Industrial	97	2,915	282,755		56,551
Regulated Industrial Sites					
Mexican Accent	3				
Precision Machining	2				
McKey Perforating	2				
TOTAL	417		586,845		117,369

Appendix A – Continued

Modification #2 - R-D 1 Provides 80% TSS Reduction

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Underwood Creek Watershed					
Residential	304	870	264,480		180,640
Institutional	77	2,050	157,850		107,812
Commercial	9	2,635	24,242		16,557
Industrial	0	2,915	0		0
TOTAL	390		446,572		305,009
Upper Fox River Watershed					
Residential	3	870	2,175		1,486
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
TOTAL	3		2,175		1,486
Upper Root River Watershed					
Residential	2,836	870	2,467,320		1,685,180
Institutional	94	2,050	192,700		131,614
Commercial	63	2,635	166,005		113,381
Industrial	0	2,915	0		0
BMP					
Gatewood Park (Residential Land use)	35	870	30,450	70%	9,135
Regulated Industrial Sites					
Fredrick Brothers Trucking	1				
Diameters	1				
Yaskawa Electric	3				
TOTAL	3,033		2,856,475		1,939,310

Total Reductions	No Controls Load (lbs/5 yrs)	2008 Reduced Load (lbs/5 yrs)	Removal Percentage
Calhoun Creek Watershed	1,939,540	904,377	53.37%
Deer Creek Watershed	2,446,940	1,599,824	34.62%
Mill Creek Watershed	463,310	316,441	31.70%
Poplar Creek Watershed	1,949,855	1,331,751	31.70%
Tess Corners Watershed	586,845	117369	80.00%
Underwood Creek Watershed	446,572	305,009	31.70%
Upper Fox River Watershed	2,175	1,486	31.70%
Upper Root River Watershed	2,856,475	1,939,310	32.11%
TOTAL	10,691,712	6,515,566	**39.06%**

Appendix A – Continued

Modification #3 - Maintenance Agreements each treating 20 acres at high density residential loading rate

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Calhoun Creek Watershed					
Residential	1,000	870	870,000		594,210
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
BMP					
Westridge					
(Residential Land use)	35	870	30,450	71%	8,831
(Institutional Land use)	36	2,050	73,800	71%	21,402
(Commercial Land use)	113	2,635	297,755	71%	86,349
(Industrial Land use)	229	2,915	667,535	71%	193,585
TOTAL	1,413		1,939,540		904,377
Deer Creek Watershed					
Residential	665	870	578,550		395,150
Institutional	355	2,050	727,750		497,053
Commercial	244	2,635	642,940		439,128
Industrial	120	2,915	349,800		238,913
BMP					
Lions Park					
(Residential Land use)	96	870	83,520	80%	16,704
Regal West					
(Residential Land use)	74	870	64,380	80%	12,876
Regulated Industrial Sites					
Milwaukee Chaplet and Mfg Company	0				
Wenthe Davidson Engineering Co	4				
Johnson Sand and Gravel	55				
Johnson Sand and Gravel	100				
Kholer Pit	119				
Industrial Towel	5				
Super Products	4				
Bodycote Thermal	3				
Spincraft	7				
Southwest Metal Finishing	3				
Durhan School	2				
Kard Recycling	2				
Starline Trucking	2				
Certified Products	4				
New Berlin Redi Mix	4				
ACS Group	3				
Fortress Mfg	1				
Fortress Forms	1				

Appendix A – Continued

Modification #3 - Maintenance Agreements each treating 20 acres at high density residential loading rate

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Deer Creek Watershed (Cont'd)					
Harder Industries	8				
Jorgensen Machining	5				
ABB Inc	4				
Schmidt Engineering	8				
Falk Renew	1				
Safety Kleen Systems	6				
Kopp Brothers	1				
FedEx Smart Post	16				
TOTAL	1,917		2,446,940		1,599,824
Mill Creek Watershed					
Residential	431	870	374,970		256,105
Institutional	4	2,050	8,200		5,601
Commercial	4	2,635	10,540		7,199
Industrial	0	2,915	0		0
BMP					
PRIVATE POND #1	20	1,585	31,700	80%	6,340
PRIVATE POND #2	20	1,585	31,700	80%	6,340
PRIVATE POND #3	20	1,585	31,700	80%	6,340
PRIVATE POND #4	20	1,585	31,700	80%	6,340
TOTAL	519		520,510		294,264
Poplar Creek Watershed					
Residential	1,485	870	1,291,950		882,402
Institutional	179	2,050	366,950		250,627
Commercial	95	2,635	250,325		170,972
Industrial	2	2,915	5,830		3,982
BMP					
PRIVATE POND #5	20	1,585	31,700	80%	6,340
PRIVATE POND #6	20	1,585	31,700	80%	6,340
Removed Industrial Sites					
On Point Gravel Site	220				
Schmitz Redi Mix	4				
BT Mail Service	17				
TOTAL	2,042		1,978,455		1,320,663

Appendix A – Continued

Modification #3 - Maintenance Agreements each treating 20 acres at high density residential loading rate

Land Use	AREA (Acres)	Loading Rate (lbs TSS/acre/5 yrs)	No Controls Load (lbs/5 yrs)	Pond Removal Percentage	2008 Reduced Load (lbs/5 yrs)
Tess Corners Watershed					
Residential	294	870	255,780		174,698
Institutional	3	2,050	6,150		4,200
Commercial	16	2,635	42,160		28,795
Industrial	97	2,915	282,755		193,122
Removed Industrial Sites					
Mexican Accent	3				
Precision Machining	2				
McKey Perforating	2				
TOTAL	417		586,845		400,815
Underwood Creek Watershed					
Residential	264	870	229,680		156,871
Institutional	77	2,050	157,850		107,812
Commercial	9	2,635	24,242		16,557
Industrial	0	2,915	0		0
BMP					
PRIVATE POND #7	20	1,585	31,700	80%	6,340
PRIVATE POND #8	20	1,585	31,700	80%	6,340
TOTAL	390		475,172		293,920
Upper Fox River Watershed					
Residential	3	870	2,175		1,486
Institutional	0	2,050	0		0
Commercial	0	2,635	0		0
Industrial	0	2,915	0		0
TOTAL	3		2,175		1,486
Upper Root River Watershed					
Residential	2,796	870	2,432,520		1,661,411
Institutional	94	2,050	192,700		131,614
Commercial	63	2,635	166,005		113,381
Industrial	0	2,915	0		0
BMP					
Gatewood Park (Residential Land use)	35	870	30,450	70%	9,135
PRIVATE POND #9	20	1,585	31,700	80%	6,340
PRIVATE POND #10	20	1,585	31,700	80%	6,340
Removed Industrial Sites					
Fredrick Brothers Trucking	1				
Diamters	1				
Yaskawa Electric	3				
TOTAL	3,033		2,885,075		1,928,222

Appendix A – Continued

Modification #3 - Maintenance Agreements each treating 20 acres at high density residential loading rate

Total Reductions	No Controls Load (lbs/5 yrs)	2008 Reduced Load (lbs/5 yrs)	Removal Percentage
Calhoun Creek Watershed	1,939,540	904,377	53.37%
Deer Creek Watershed	2,446,940	1,599,824	34.62%
Mill Creek Watershed	520510	294264	43.47%
Poplar Creek Watershed	1978455	1320662.565	33.25%
Tess Corners Watershed	586,845	400,815	31.70%
Underwood Creek Watershed	475,172	293,920	38.14%
Upper Fox River Watershed	2,175	1,486	31.70%
Upper Root River Watershed	2,885,075	1,928,222	33.17%
TOTAL	10,834,712	6,743,570	**37.76%**

Appendix B
Storm Water Utility Revenues and Expenditures

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate:	5.00
FY 2009 Additional O&M Funds:	$0
FY 2009 Charge Increase:	0%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$ 1,571,948	$ 1,593,294	$ 1,601,664	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000	$ 1,600,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	613,733	613,733	613,733	613,733	613,733	613,733
Additional "Catch-Up" O&M										
Depreciation	359,839	374,855	392,631	380,000	380,000	380,000	380,000	380,000	380,000	380,000
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	993,733	993,733	993,733	993,733	993,733	993,733
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	606,267	606,267	606,267	606,267	606,267	606,267
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,073	59,275	37,035	14,620	5,100	5,100
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	45,000	45,000	45,000	45,000	45,000	45,000
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	567,194	591,992	614,232	636,647	646,167	646,167
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$ 1,081,392	$ 267,438	$ 552,092	$ 544,349	$ 1,067,194	$ 1,091,992	$ 1,114,232	$ 1,136,647	$ 1,146,167	$ 1,146,167

Appendix B - Continued

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate:	5.00
FY 2009 Additional O&M Funds:	$0
FY 2009 Charge Increase:	15%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$ 1,571,948	$ 1,593,294	$ 1,601,664	$ 1,600,000	$1,840,000	$1,840,000	$1,840,000	$ 1,840,000	$ 1,840,000	$ 1,840,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	644,420	676,641	710,473	745,996	783,296	822,461
Additional "Catch-Up" O&M										
Depreciation	359,839	374,855	392,631	380,000	399,000	418,950	439,898	461,892	484,987	509,236
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	1,043,420	1,095,591	1,150,370	1,207,889	1,268,283	1,331,697
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	796,580	744,409	689,630	632,111	571,717	508,303
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,355	5,623	5,904	6,199	6,509	6,834
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,328	59,798	37,839	15,719	6,509	6,834
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	47,250	49,613	52,093	54,698	57,433	60,304
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	47,250	49,613	52,093	54,698	57,433	60,304
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	759,502	734,224	703,884	671,090	622,641	561,773
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$ 1,081,392	$ 267,438	$ 552,092	$ 544,349	$ 1,259,502	$ 1,234,224	$ 1,203,884	$ 1,171,090	$ 1,122,641	$ 1,061,773

Appendix B – Continued

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate:	5.00
FY 2009 Additional O&M Funds:	$1,000,000
FY 2009 Charge Increase:	15%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$ 1,571,948	$1,593,294	$ 1,601,664	$ 1,600,000	$ 1,840,000	$ 1,840,000	$1,840,000	$1,840,000	$1,840,000	$ 1,840,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	644,420	676,641	710,473	745,996	783,296	822,461
Additional "Catch-Up" O&M					1,000,000					
Depreciation	359,839	374,855	392,631	380,000	399,000	418,950	439,898	461,892	484,987	509,236
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	2,043,420	1,095,591	1,150,370	1,207,889	1,268,283	1,331,697
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	(203,420)	744,409	689,630	632,111	571,717	508,303
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,355	5,623	5,904	6,199	6,509	6,834
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,328	59,798	37,839	15,719	6,509	6,834
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	47,250	49,613	52,093	54,698	57,433	60,304
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	47,250	49,613	52,093	54,698	57,433	60,304
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	(240,498)	734,224	703,884	671,090	622,641	561,773
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$1,081,392	$267,438	$ 552,092	$ 544,349	$259,502	$ 1,234,224	$ 1,203,884	$ 1,171,090	$1,122,641	$ 1,061,773

Appendix B – Continued

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate: 0.00
FY 2009 Additional O&M Funds: $1,500,000
FY 2009 Charge Increase: 15%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$ 1,571,948	$1,593,294	$ 1,601,664	$ 1,600,000	$ 1,840,000	$1,840,000	$ 1,840,000	$ 1,840,000	$1,840,000	$ 1,840,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	613,733	613,733	613,733	613,733	613,733	613,733
Additional "Catch-Up" O&M					1,500,000					
Depreciation	359,839	374,855	392,631	380,000	380,000	380,000	380,000	380,000	380,000	380,000
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	2,493,733	993,733	993,733	993,733	993,733	993,733
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	(653,733)	846,267	846,267	846,267	846,267	346,267
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,073	59,275	37,035	14,620	5,100	5,100
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	45,000	45,000	45,000	45,000	45,000	45,000
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	(692,806)	831,992	854,232	876,647	886,167	886,167
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$1,081,392	$267,438	$552,092	$544,349	$(192,806)	$1,331,992	$1,354,232	$1,376,647	$ 1,386,167	$1,386,167

Appendix B – Continued

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN
STORMWATER UTILITY

Annual Inflation % Rate: 0.00
FY 2009 Additional O&M Funds: $1,000,000
FY 2009 Charge Increase: 15%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$1,571,948	$ 1,593,294	$1,601,664	$1,600,000	$1,600,000	$1,600,000	$1,600,000	$ 1,600,000	$1,600,000	$1,600,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	613,733	613,733	613,733	613,733	613,733	613,733
Additional "Catch-Up" O&M					1,000,000					
Depreciation	359,839	374,855	392,631	380,000	380,000	380,000	380,000	380,000	380,000	380,000
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	1,993,733	993,733	993,733	993,733	993,733	993,733
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	(393,733)	606,267	606,267	606,267	606,267	606,267
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,073	59,275	37,035	14,620	5,100	5,100
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	45,000	45,000	45,000	45,000	45,000	45,000
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	(432,806)	591,992	614,232	636,647	646,167	646,167
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$1,081,392	$ 267,438	$552,092	$ 544,349	$ 67,194	$ 1,091,992	$ 1,114,232	$ 1,136,647	$1,146,167	$ 1,146,167

Appendix B – Continued

Storm Water Utility Revenues and Expenditures

CITY OF NEW BERLIN

STORMWATER UTILITY

Annual Inflation % Rate: 0.00

FY 2009 Additional O&M Funds: $0

FY 2009 Charge Increase: 0%

	2006 ACTUAL	2007 ACTUAL	2008 ACTUAL	2009 FORECAST	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	2015 FORECAST
OPERATING REVENUES:	$1,571,948	$ 1,593,294	$ 1,601,664	$1,600,000	$1,600,000	$1,600,000	$1,600,000	$1,600,000	$ 1,600,000	$ 1,600,000
OPERATING EXPENSES:										
Operations & Maintenance	793,101	1,306,092	756,066	613,733	613,733	613,733	613,733	613,733	613,733	613,733
Additional "Catch-Up" O&M										
Depreciation	359,839	374,855	392,631	380,000	380,000	380,000	380,000	380,000	380,000	380,000
TOTAL OPERATING EXPENSE:	1,152,940	1,680,947	1,148,697	993,733	993,733	993,733	993,733	993,733	993,733	993,733
NET OPERATING REVENUE:	419,008	(87,653)	452,967	606,267	606,267	606,267	606,267	606,267	606,267	606,267
NON-OPERATING EXPENSES:										
Interest on Debt	156,619	139,653	120,330	101,818	78,973	54,175	31,935	9,520	-	-
Amortization	8,369	7,237	6,216	5,100	5,100	5,100	5,100	5,100	5,100	5,100
Arbitrage Expenses			23,539							
Loss on Disposal	-	-	4,814	-	-	-	-	-	-	-
TOTAL NON-OPERATING EXPENSE:	164,988	146,890	154,899	106,918	84,073	59,275	37,035	14,620	5,100	5,100
NON-OPERATING REVENUES:										
Interest Income	171,806	140,897	50,240	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Grants	128,560	757	111,394	-	-	-	-	-	-	-
TOTAL NON-OPERATING REVENUE:	300,366	141,654	161,634	45,000	45,000	45,000	45,000	45,000	45,000	45,000
NET INCOME BEFORE CAPITAL CONTRIBUTIONS:	554,386	(92,889)	459,702	544,349	567,194	591,992	614,232	636,647	646,167	646,167
Capital Contributions	527,006	360,327	92,390	-	500,000	500,000	500,000	500,000	500,000	500,000
NET RECEIPTS	$ 1,081,392	$ 267,438	$ 552,092	$ 544,349	$ 1,067,194	$ 1,091,992	$ 1,114,232	$ 1,136,647	$ 1,146,167	$ 1,146,167

APPENDIX C
Draft Resolution Establishing a Storm Water Utility Credit System

STATE OF WISCONSIN WAUKESHA COUNTY CITY OF NEW BERLIN

RESOLUTION NO. ____

A RESOLUTION CREATING CRITERIA FOR ADJUSTMENTS TO STORM WATER SERVICE CHARGES FOR FACILITIES WHICH REDUCE RUNOFF OR POLLUTANT LOADING

WHEREAS, the City of New Berlin Common Council on 8/14/2001 adopted Ordinance No. 2147 which created a storm water utility; and

WHEREAS, Ordinance No. 2147 calls for the adoption of a separate resolution with criteria for providing adjustments to storm water service charges so as to account for storm water management facilities that are properly maintained and which:

(i) Reduce the storm water runoff rate to the municipal storm water system.
(ii) Reduce the amount of pollutant loading to the municipal storm water system.

NOW, THEREFORE BE IT RESOLVED that the City of New Berlin Common Council hereby adopts the following credits as adjustments to storm water service charges established under City Ordinance No. 2147:

1. Properties with on-site storm water management facilities designed using Best Management Practices (BMP) as disseminated by the Wisconsin Department of Natural Resources under subchapter V of Chapter NR 151, Wis. Admin. Code to properly manage storm water runoff from impervious surfaces may be eligible for credits to reduce a portion of their storm water service charge. Total credits may not reduce the total storm water service charge by more than 50% for any single property.

2. Eligible credits as adjustments to storm water service charges shall include:

(a) Zero Discharge Credit – for properties which discharge storm water runoff that never enters the City's storm water system or body of water maintained by the City; and properties which contain storm water runoff entirely on site. Examples of such cases include properties discharging directly to waters of the state, and properties with facilities such as grass swales, rain gardens and other bio-infiltration areas, respectively. The credit will be calculated on a pro-rata basis proportionate to the percentage of property's storm water not discharged to the City's system with the following maximums:

Storm event:	Maximum credit:
2 year	20 %
5 year	30 %
10 year	40 %
25 year	50%

(b) Peak Discharge Reduction Credit – for properties that detain or retain storm water runoff on site to reduce the local peak storm water runoff discharge rate to the City's storm water system. The credit will be calculated on a pro-rata basis proportionate to the percentage of peak discharge reduction of the property's storm water runoff at the point of the City's storm water system with the following maximums:

Storm event:	Maximum credit:
2 year	5 %
5 year	10 %
10 year	15 %
25 year	20 %
50 year	30 %

(c) Pollutant Discharge Reduction Credit – for properties with facilities which improve discharged storm water quality by reducing the storm water runoff average annual sediment load (calculated as Total Suspended Solids) reaching the City storm water system. The credit will be calculated on a pro-rata basis proportionate to the percentage of average annual sediment load not discharged to the City's system.

3. Properties which are individually assessed a storm water service charge but share the use and cost of maintaining a privately owned, privately maintained storm water facility may be eligible for credits. Application for credits should be made by the entity which directly owns the shared facility. Examples include single family houses which are part of a common development plan served by a home owners' association responsible for the storm water facility.

4. Property owners must provide sufficient information to the City Engineer for his determination of eligibility including: maps, facility construction plans and specifications, calculations (using SLAMM models or other commonly accepted engineering methods), maintenance plans and other supporting documentation, preferably prepared by a registered professional engineer. The City Engineer will make a recommendation to the City Storm Water Committee for its final decision per the process designated in City Ordinance No. 2147.

5. The City may rescind storm water service charge credits from properties with facilities which are not treating storm water per design capacity due to construction revisions, improper maintenance, changed field conditions or other reason.

Appendix C - Continued

BE IT FURTHER RESOLVED that the City Clerk is hereby directed to publish this resolution in _____ within 10 days of adoption by the Common Council.

Passed and adopted by the Common Council the _____ day of _____, ____.

Approved:

_____

_____, Mayor

Countersigned / Certified:

_____
_____, City Clerk

APPENDIX D

Draft Storm Water Utility Credit Application

City of New Berlin, WI
Storm Water Utility Credit Application

The City of New Berlin charges private property owners a storm water utility fee which is used by the City to properly manage and treat storm water running off publicly and privately owned properties. Per City Ordinance No. 2147, you may receive credit for the payment of this fee if you can demonstrate that facilities on your property reduces storm water peak flow and/or storm water pollutants handled by City infrastructure.

No adjustments shall be considered for structural or nonstructural Best Management Practices that are required in order to comply with any local, State or Federal regulation, or for natural features in existence prior to August 14th, 2001.

Note that eligible condo owners and property owners in neighborhoods with homeowners' associations must apply as a group with one application from the owner of the storm water facilities.

Applying for (check as many as apply):

o **Zero Discharge Credit** – Your property does not discharge or reduces the discharge or storm water runoff to the City's storm water system or body of water maintained by the City.

o **Peak Discharge Reduction Credit** – Your property has facilities that detain or retain storm water to reduce the peak runoff discharge rate in the City's storm water system.

o **Pollutant Discharge Reduction Credit** – Your property has facilities that reduce the average annual sediment load (calculated as Total Suspended Solids) reaching the City's storm water system.

Description of storm water facilities or best management practice:_____

Property Address: _____ Property ID Number: _____

_____ Please contact ***** for assistance if not known.)

Property owner: _____ Contact person: _____

Phone number: _____

Property owner's address: _____ E-mail address: _____

_____

APPENDIX D – CONTINUED

The above information is true and correct to the best of my knowledge and belief. I agree to promptly provide corrected property information should there be any changes in the information provided herein.

This application must be signed by the financially responsible person(s) if an individual(s), or if not an individual, by an officer, director, partner or registered agent with authority to execute instruments for the financially responsible entity.

_____ _____

_____ Title or authority (Print "owner" if owner)

Print name(s)

_____ Date

Signature(s)

Return to: Engineering Department, City of New Berlin, 3805 S. Casper Drive, New Berlin, WI 53151

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