

**CITY OF WHITEWATER  
COMMON COUNCIL AGENDA**

Common Council Meeting  
Tuesday, June 7, 2011 – 6:30 p.m.  
City of Whitewater Municipal Building Community Room  
312 W. Whitewater Street Whitewater, Wisconsin

**AMENDED AGENDA AS OF 10:00 a.m. 6/3/2011 TO ADD UNDER  
REPORTS SECTION:**

**Interim Police Chief – Crime Prevention Security Notice**

**CALL TO ORDER, ROLL CALL, AND PLEDGE OF ALLEGIANCE.**

**CONSENT AGENDA:**

CA-A	Approval of Council Minutes of April 27, May 3 and May 17, 2011.
CA-B	Approval of Payment of Invoices Processed through 6/2/2011.
CA-C	Expedited approval of the following items, per city staff recommendation: C-1, C-2

**REPORTS:**

City Manager	1) State Budget Update
Park & Recreation	1) Make a Difference Day Report
Police	1) Crime Prevention Security Notice

**HEARING OF CITIZEN COMMENTS.** No formal Common Council Action will be taken during this meeting although issues raised may become a part of a future agenda. Participants are allotted a three minute speaking period. Specific items listed on the agenda may not be discussed at this time; however citizens are invited to speak to those specific issues at the time the Council discusses that particular item.

**RESOLUTIONS:**

R-1	Amending Sanitary Sewer Rates
R-2	Amendment No. 1 to 2011 Salary Resolution (to reflect change in classification of former Asst. Finance Director / Treasurer position) [Asst. to the City Manager Request]

**ORDINANCES: First Reading**

O-1	An ordinance creating Chapter 7.27; Possession, Sale and Use of Synthetic Cannabinoids Substances Prohibited. (Interim Police Chief Request)
O-2	An Ordinance Amending Ch. 1.21.010, Schedule of Deposits (Assigns penalties for violation of the synthetic cannabinoid ordinance) (Interim Police Chief Request)
O-3	An Ordinance Amending Section 11.54.010 “No Truck Traffic” (DPW Director Request)

**ORDINANCES: Second Reading - NONE**

**CONSIDERATIONS:**

*C-1	Renewal of 2011-2012 Beer, Wine and Alcohol Licenses (Class “B” Beer ; “Class B” Beer and Liquor; Class “A” Beer, “Class A Beer and Liquor”, Class C Wine Licenses, Wholesale Beer License. (City Clerk Request)
*C-2	Approval of expansion of Class B Beer and Liquor License for Station 1, Center Street, to authorize beer and alcohol sales in Sidewalk Café area. (City Clerk Request)
C-3	Presentation of Water Rate Cost of Service (DPW Director / Finance Director Request)
C-4	Action on Alcohol Licensing Committee’s Recommendation on Caitlyn Jo Findreng’s Appeal of the Denial of her Beverage Operator’s (Bartender’s) License. [City Clerk Request]
C-4	Presentation / Adoption of Lakes Preservation Management Plan. (Park & Recreation Director Request)
C-5	Councilmember Requests for Future Agenda Items.
C-6	Adjourn

**Anyone requiring special arrangements is asked to call the Office of the City Manager / City Clerk at least 24 hours prior to the meeting. Items denoted with asterisks will be approved on the Consent Agenda unless any council member requests that it be removed for individual discussion.**

## MEMORANDUM

**TO:** Common Council

**FROM:** Kevin Brunner, City Manager

**DATE:** June 2, 2011

**RE:** Comments on June 7, 2011 Agenda Items

- 1. Amending Sanitary Sewer Rates.** As I previously communicated to the Council, Whitewater's average total sewer/water bill in 2010 was \$662.36 which was approximately \$125 less than the state wide average of \$787.43. Whitewater's average bill ranked 225<sup>th</sup> of the 337 Wisconsin utilities surveyed and was in the bottom 33% of those utilities.

On the sewer side, our average billing in 2010 was \$463.32 which was ranked 184<sup>th</sup> of 341 Wisconsin sewer utilities and about \$40.00 below the state wide average of \$501.08. Because of all the recent wastewater plant improvements (and this year's biogas project), clean water fund loan requirements will necessitate an increase of approximately 12% this year. That increase, which will mean an increase for the average customer by \$55.00, will still put our annual average billing squarely within the 50<sup>th</sup> percentile of all Wisconsin sewer utilities.

Making these capital investments to our aging sanitary sewer system has been, I believe, very prudent from a financial and operational perspective. Financially, we have been able to take advantage of grants and low interest loans as well as a very favorable public bidding climate these last several years. Operationally, the improvements that have and will be made will enable our utility system to be much more efficient (less energy and less labor) in the future than if these improvements would not have been made. With the AMR installation, we are also improving customer service. Improvements will also allow for the future growth of our community.

It is inevitable that our citizens and customers will question the need for the impact of this increase in our sanitary sewer rates. However, it is important to put our rates in the context of how we compare to other communities (our total sewer/water bills will still be below the state wide average, particularly for water services) and we will have accomplished a significant upgrading of our entire sanitary sewer system.

The average cable TV customer in Whitewater now pays about \$756 annually for that service. After the planned sewer and water rate increases scheduled for later this year, the average Whitewater sewer and water customer will wind up paying approximately the same amount for these essential services which we all literally cannot live without.

- 2. Amending 2011 Salary Resolution (Employee Classification/Compensation Plan).** This was previously communicated to you. I am recommending that the current Assistant Finance Director/Treasurer position be reclassified as a Finance Support Services Supervisor and that

the classification/compensation level for the position be changed from the current "F" to "D" in the City's Classification Compensation Plan. This resolution supports these changes.

I anticipate that while we want to retain the flexibility in hiring a new person within this salary range depending on his/her qualifications we project that we will save between \$12,000 and \$14,000 per year due to this change in classification/compensation level. The position will supervise three accounting technicians and we will need to maintain at the very least the a 10% differential in compensation between this position and the compensation of those supervised.

3. **Prohibiting Sales of Synthetic Marijuana.** The Police Department has been concerned about this issue for several months and at least one local business is selling this product which is being marketed toward teenagers. I support the Police Department request to prohibit these sales in our community and note that a number of other communities in our area including Fort Atkinson have recently adopted such an ordinance.
4. **Prohibiting Truck Traffic.** We discussed with Council at the special meeting held on April 27<sup>th</sup> the prohibition of semi-truck traffic on East Milwaukee Street, West Main Street, West Whitewater Street and South Janesville Street (the old State Highway 59 and Highway 12 corridors) continued semi-truck traffic is contributing significantly to the deterioration of these streets. In addition, we have received complaints from downtown business owners and residents about the truck noise through the central part of the community. An ordinance that would prohibit truck traffic on these streets and limit such traffic to established truck routes has been drafted.

Councilmember Olsen has requested an expedited review of this ordinance, but with the provision that it would become effective later this year. I am suggesting October 1<sup>st</sup>. The reason for that effective date being later in the year is to allow local businesses adequate time to modify their trucking routes to serve their business needs. We have spoken to a number of firms in the Whitewater Business Park about this change and none have expressed major concerns or reservations, however, I do want to make sure that we have adequate time to inform all businesses, even those outside the City, such as Hagen and Pope Trucking of the change such that they have adequate time to change their trucking operations.

5. **Presentation of Water Rate Cost of Service.** Jon Cameron of MEP, our water rate consultants, will be present to update the Council on the water rate cost of service analysis that MEP has completed. The MEP and staff recommendation is to pursue a life line rate rather than maintaining the current rate structure methodology. We are requesting that the Council give us further direction on how to proceed with the water rate increase application to the Wisconsin Public Service Commission (PSC).

I do also want to alert you to the fact that LS Power has indicated in a filing with the Wisconsin PSC that they will be objecting to the water rate increase. My understanding is that they took the same approach back in 2004 when the last water rate increase was filed and approved. We have shared MEP's analyses with LSP and are hoping to meet face to face with them regarding our water utility financial needs in the near future.

As I mentioned earlier in this memo, our utility rates are particularly low compared to other Wisconsin municipalities. Our water rates rank in the bottom 20<sup>th</sup> percentile of State water utilities. Our average annual billing of \$199.04 was almost \$90.00 less than the state wide average of \$290.91 which was ranked 273<sup>rd</sup> out of the 341 water utilities surveyed. Again, as City staff has emphasized to you in recent presentations, our water rates have not been formally adjusted through the Wisconsin Public Service Commission in over seven years now. Even with the projected increase of 23% to pay for AMR and other water system improvements, our water rates would still be considered below the state wide average.

- 6. Presentation and Adoption of Lakes Preservation Management Plan.** Dr. Jeff Thornton of SEWRPC will be present to present the Lakes Preservation Management Plan to the Council. The project was funded under a State Department of Natural Resources grant and is the product of almost three years of work by SEWRPC and other consultants.

I think there are a number of good recommendations in this plan that we should begin implementing as soon as possible. Obviously, some of the recommendations come with some pretty steep costs that we will need to discuss and see how we can best accommodate over the next several years. Adopting the plan will not commit the City to future financial commitments.

If you have any questions regarding any of these items prior to next week's meeting, please feel free to contact me.

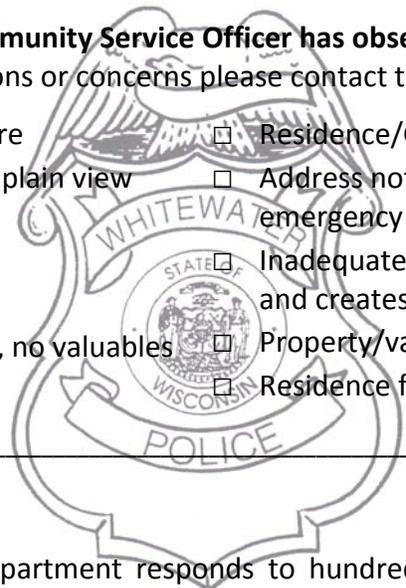
# **WHITEWATER POLICE DEPARTMENT**

## **COURTESY CONTACT – SECURITY CHECK INFORMATION**

**A Whitewater Police Officer / Community Service Officer has observed the following security risk(s).**

If you have any questions or concerns please contact the officer listed below.

- Vehicle appeared unlocked/unsecure
- Property / Valuables were noted in plain view inside your vehicle
- Keys were noted inside the vehicle
- Vehicle windows open
- Vehicle found in top security shape, no valuables visible, vehicle secure
- OTHER \_\_\_\_\_
- Residence/Garage appeared unsecure
- Address not clearly displayed or visible for an emergency response
- Inadequate lighting, reduces visibility for officers and creates concealment for unwanted subjects
- Property/valuables left in yard unsecured
- Residence found in top security shape



Every year the Whitewater Police Department responds to hundreds of thefts from motor vehicles and buildings. This courtesy notice is the department's attempt to partner with our residents to make Whitewater an inhospitable and difficult target for local and transient thieves. The vast majority of these thefts were due to unsecured property/vehicles and/or because property was left in plain view.

OFFICER \_\_\_\_\_

NON-EMERGENCY PHONE: (262)473-0555

# **WHITEWATER POLICE DEPARTMENT**

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COURTESY OF THE WHITEWATER POLICE DEPARTMENT  
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- Vehicle appeared unsecure
- Property / Valuables were noted in plain view inside your vehicle
- Keys were noted inside the vehicle
- Fresh or questionable damage was with/around your vehicle
- Residence appeared unsecure
- Windows open
- Address not clearly displayed or visible for an emergency response
- Shading found covering residence; possible candidate for covert surveillance
- Vehicle found in top security shape, no valuables visible, vehicle secure
- Residence found in top security shape
- OTHER: \_\_\_\_\_

Every year the Whitewater Police Department responds to hundreds of thefts from motor vehicles and buildings. This courtesy notice is the department's attempt to partner with our residents to make Whitewater an inhospitable and difficult target for local and transient thieves. With the exception of a few entries, previous thefts occurred through unsecured vehicles and buildings.

OFFICER \_\_\_\_\_

EMAIL/CONTACT NUMBER \_\_\_\_\_

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OFFICER \_\_\_\_\_

EMAIL/CONTACT NUMBER \_\_\_\_\_

ABSTRACT/SYNOPSIS OF THE ESSENTIAL ELEMENTS OF THE OFFICIAL ACTIONS OF THE COMMON COUNCIL OF THE CITY OF WHITEWATER, WALWORTH AND JEFFERSON COUNTIES, WISCONSIN.

April 27, 2011

Prior to the Council meeting, City Councilmembers and City Staff members toured the Effigy Mounds, Prince and Prairie Street location (proposed for multi-family development), the Wastewater Treatment Plant; the Starin Road extension; the Whitewater University Technology Park; and Milwaukee Street. After the tour, Council returned to the City Hall for a light dinner.

The special meeting of the Common Council was called to order at 5:30 p.m. by Council President Singer. MEMBERS PRESENT: Olsen, Winship, Binnie, Singer, Kienbaum, Stewart. MEMBERS ABSENT: Butler.

**APPOINTMENT OF CITIZEN MEMBERS TO BOARDS AND COMMISSIONS**. Council President Singer and City Manager Brunner met and have made the following recommendations for appointments to Board and Commission seats. **BIRGE FOUNTAIN COMMITTEE**: Jim Allen, Rod Dalee and Roy Nosek; **BZA**: Jim Olsen, Beverly Stone and Harriet Kaluva; **CDA**: Laurence Kachel and Donna Henry; **DISABILITY RIGHTS COMMITTEE**: Kim Armitage; **ETHICS COMMITTEE** – Harriet Kaluva; **LANDMARKS COMMISSION**: Carol Christ; **LIBRARY BOARD**: Julie Caldwell and Richard Helmick; **PARK AND RECREATION BOARD**: Kenneth Kidd and Kim Gosh (Gosh as alternate member); **PLAN COMMISSION**: Greg Torres, Greg Meyer and Donna Henry (as alternate member); **POLICE COMMISSION**: David Haberman; **URBAN FORESTRY COMMISSION**: Andrew Crone and Jay Craggs. It was moved by Olsen and seconded by Binnie to approve the slate of appointments as recommended by the Council President and the City Manager. AYES: Olsen, Winship, Binnie, Singer, Kienbaum, Stewart. NOES: None. ABSENT: Butler.

**PRESENTATION OF PRELIMINARY WATER RATE STUDY**. John Cameron of Municipal Economics & Planning presented the City of Whitewater Water Rate Study. It was explained that water rates are approved and set by the Public Service Commission ("PSC"). In order to increase water rates, an application must be submitted to the PSC. Cameron provided rate comparisons of area communities, and Whitewater's rate was \$199.04 per year (water only) while the statewide average was \$290.91. Cameron reported that Whitewater's residential class is conserving water on their own, without an inclining block rate structure. It was also noted that the system peak day is normally in the third quarter of the year and seems to be due to the Power Plant and University. Cameron presented rate options: 1) Keep the current rate structure; or 2) Create a "lifeline" rate for low users. Cameron's recommendation was to establish the "lifeline" rate. Further information will be forthcoming.

**AMENDMENT TO CAPITAL IMPROVEMENT PLAN**. City Manager Brunner recommended that amendments to the City's Capital Improvement Plan be made. Brunner stated that Milwaukee Street did not survive the winter very well, and a great deal of labor and material for daily maintenance is being expended. Whitewater's project did not make the Surface Transportation Program funding list. The City cannot apply again until 2012, and if the City was successful at that time, funding would not be available until 2015-2016. The Milwaukee / Newcomb intersection is scheduled for 2014. As part of this project, the sanitary sewer is planned to be lowered to alleviate a backup problem at Newcomb and E.

*Not yet proofread*

Main Street. In order to lower this section of the sewer, the sewer on Milwaukee from Wisconsin to Esterly needs to be lowered and completed before the intersection work. The approved CIP planned to do the Downtown East Gate, Milwaukee (Esterly to Wisconsin) and the Newcomb/Milwaukee intersection in the same year. As staff reviewed that plan, it was determined it would be extremely difficult to reconstruct that much in one year. In addition, disruption of business for not only Milwaukee Street, but anyone traveling on the East side of the City would be tremendous.

Finance Director Saubert presented financial information for the CIP for 2011- 2013. Explanations of borrowings for the above projects were presented. It was agreed that there are too many disruptive projects planned for all to take place at one time. It was moved by Binnie and seconded by Winship to approve the updates to the Capital Improvement Plan as presented by City Staff. AYES: Olsen, Winship, Binnie, Singer, Kienbaum, Stewart. NOES: None. ABSENT: Butler.

**ADJOURNMENT.** Being no further business to come before the meeting, it was moved by Winship and seconded by Stewart to adjourn the meeting. AYES: Olsen, Winship, Binnie, Singer, Kienbaum, Stewart. NOES: None. ABSENT: Butler. The meeting adjourned at 7:30 p.m.

Respectfully submitted,

Michele R. Smith, City Clerk

# CA-A

## ABSTRACT/SYNOPSIS OF THE ESSENTIAL ELEMENTS OF THE OFFICIAL ACTIONS OF THE COMMON COUNCIL OF THE CITY OF WHITEWATER, WALWORTH AND JEFFERSON COUNTIES, WISCONSIN.

May 3, 2011

The Council meeting of the Common Council was called to order at 6:30 p.m. by Council President Singer. MEMBERS PRESENT: Binnie, Singer, Kienbaum, Olsen, Stewart, Winship, Butler. MEMBERS ABSENT: None. LEGAL COUNSEL PRESENT: Wallace McDonell.

**APPROVAL OF MINUTES.** It was moved by Olsen and seconded by Butler to acknowledge receipt and filing of: Council Minutes of April 7, 2011; Whitewater University Technology Park Board Minutes of February 23 and March 16, 2011; Community Development Authority Minutes of March 28, 2011; Library Board Minutes of April 11, 2011; Police Department Consolidated Monthly Report for March 2011. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**APPROVAL OF PAYMENT OF INVOICES.** It was moved by Olsen and seconded by Butler to approve payment of city invoices processed through April 28, 2011 in the total sum of \$124,799.19. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**REPORTS:** Councilmember Winship gave recognition to the NCAA National Championship UW-Whitewater Men's Wheelchair Basketball Team. City Manager Brunner reported on Tree City USA Recognition, Dedication/Open House for the Whitewater Innovation Center, lab build out for tenants at the Whitewater Innovation Center, Historic Preservation Month Proclamation and Wisconsin Archaeology Month. Senior Coordinator Deb Weberpal reported on the Proclamation Declaring May as Older American Month and the introduction of the Essay Contest Winners. Downtown Whitewater Executive Director Tami Brodnicki reported on the Downtown Whitewater, Inc. Quarterly Report and the 2011 Wisconsin Main Street Awards.

**HEARING OF CITIZEN COMMENTS.** No formal Common Council Action will be taken during this meeting although issues raised may become a part of a future agenda. Participants are allotted a 3-5 minute speaking period. Specific items listed on the agenda may not be discussed at this time; however citizens are invited to speak to those specific issues at the time the Council discusses that particular item.

Jan Bilgen, 178 N Park Street, invited everyone in the audience to the Police Day event at the Municipal Building on May 15. Mark Wokash, 146 W Main Street had a question about the timing of the Main Street overlay project. DPW Director Dean Fischer responded, stating that the project would be completed on May 11, ahead of graduation.

### **COMMENDING DEPARTMENT OF PUBLIC WORKS EMPLOYEES ON THEIR OUTSTANDING SNOW REMOVAL EFFORTS DURING WINTER 2010-2011.**

#### **RESOLUTION HONORING CITY OF WHITEWATER DPW EMPLOYEES**

WHEREAS, the City of Whitewater, Walworth and Jefferson Counties, Wisconsin experienced several substantial snowstorms during the Winter of 2010-2011, and

WHEREAS, the "Groundhog Day Blizzard" on February 2<sup>nd</sup>, 2011 dumped over a foot of snow on the city with similar amounts in neighboring communities paralyzing the region, and,

WHEREAS, the City of Whitewater DPW performed marvelously in ensuring that the city streets were passable to both citizen and commuter alike, earning praise from those in the community, and,

WHEREAS, Streets Superintendent Chuck Nass and his team of dedicated workers: Todd Buckingham, Brian Neumeister, John Alvarado, Eddie Hernandez, Kevin Heckert, Dave Himself, Andrew Beckman, Rick Babcock, and Kelly Freeman worked tirelessly during this entire winter to ensure the continued operation of the city streets regardless of the weather, and,

NOW THEREFORE, BE IT RESOLVED that the Common Council of the City of Whitewater expresses its sincere appreciation on behalf of the citizens represented for the level of service that is continually performed by the Whitewater Public Works staff; and

BE IT FURTHER RESOLVED that Wednesday May 4<sup>th</sup>, 2011 is designated Whitewater Department of Public Works Day in the City of Whitewater to honor the tremendous work done by the Whitewater Public Works employees.

Resolution introduced by Councilmember Singer, who moved its adoption. Seconded by Councilmember Olsen. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. DATE: May 3, 2011

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**AUTHORIZING EXTENSION OF CLASS "B" LICENSE FOR CAPN'S FOR TREYTON KILAR EVENT.**

**RESOLUTION GRANTING PERMISSION FOR AN EVENT TO BE HELD AT CAPN'S OF WHITEWATER (THE AMERICAN LEGION BUILDING), 292 SOUTH WISCONSIN STREET, WHITEWATER, WISCONSIN**

WHEREAS, CAPN'S of Whitewater, LLC, is currently licensed and zoned to allow the service of alcohol within its building located at 292 South Wisconsin Street, Whitewater, Wisconsin, and

WHEREAS, CAPN'S of Whitewater, LLC, plans to hold a fundraising event for a charitable cause which includes the use of portions of its outdoor property for the service of alcohol beverages, and

WHEREAS, it is appropriate to use portions of the outdoor area of 292 South Wisconsin Street for this event.

Now, therefore, **BE IT RESOLVED** as follows;

1. CAPN'S of Whitewater, LLC, is hereby granted permission to serve alcohol beverages outdoors at an event to take place on May 14, 2011, at its premises located at 292 South Wisconsin Street, City of Whitewater, Walworth County, Wisconsin, during the hours of 3:00 P.M. until 12:00 A.M. (midnight).

2. The area where alcohol is served outside shall be limited to the back (lakeside) parking lot of the property, and any outdoors music entertainment shall end at 11:00 P.M.

3. The Chief of Police and Neighborhood Services Director may impose additional conditions to promote the health and safety of the event.

Resolution introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Butler. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. DATE: May 3, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

## **RESOLUTION DISCONTINUING A PORTION OF MORAINÉ VIEW PARKWAY.**

### **RESOLUTION DISCONTINUING A PORTION OF MORAINÉ VIEW PARKWAY**

**WHEREAS**, the City of Whitewater has recently constructed an Innovation Center in the City of Whitewater, and

**WHEREAS**, there is currently a platted street stub for Moraine View Parkway that is located near said Innovation Center, and

**WHEREAS**, the Moraine View Parkway stub is not needed for current development plans for the area and may be an impediment to the development of the City of Whitewater Technology Park, and

**WHEREAS**, the public interest requires it.

Now, therefore, **BE IT RESOLVED** as follows:

1. Moraine View Parkway from its intersection with Innovation Drive southerly to the point described on the attached legal description, and shown on the attached and map, is hereby discontinued.
2. The official map of the City of Whitewater is hereby amended to show the discontinuance of this portion of Moraine View Parkway.

Resolution introduced by Wallace McDonell. This resolution will come back for Council's approval more than 40 days from May 3, 2011.

## **RESOLUTION DISCONTINUING A PORTION OF SUMMIT STREET.**

### **RESOLUTION DISCONTINUING A PORTION OF SUMMIT STREET**

**WHEREAS**, the City of Whitewater has realigned Summit Street in the City of Whitewater at its intersection with Janesville Street, and

**WHEREAS**, after the realignment of Summit Street, portions of the Summit Street right-of-way are no longer needed for street purposes, and

**WHEREAS**, the public interest requires it.

Now, therefore, **BE IT RESOLVED** that:

1. The portion of Summit Street described on the attached legal description and shown on the attached map is hereby discontinued.

2. A public sidewalk easement for the purpose of the public use and for the purpose of installing, laying, repairing, and maintaining sidewalks or pedestrian pathways is retained by the City of Whitewater on and over said property..
3. The official map of the City of Whitewater is hereby amended to show the discontinuance of this portion of the street.

Resolution introduced by Wallace McDonell. This resolution will come back for Council's approval more than 40 days from May 3, 2011.

## **AMENDING CHAPTER 11.12.011, STOP SIGNS TO ADD AN ADDITIONAL STOP SIGN LOCATION.**

### **AN ORDINANCE AMENDING SECTION 11.12.011 STOP SIGNS**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, does hereby ordain as follows:

**SECTION 1:** Whitewater Municipal Code Section 11.12.011, entitled Stop Signs, is hereby amended as follows:

By adding the following new stop signs to the Street Index of Stop Signs:

- “Fremont Street – northbound at Starin Road.”
- “Fremont Street – southbound at Starin Road.”
- “Jefferson Street – northbound at Starin Road.”
- “Jefferson Street – southbound at Starin Road.”
- “Starin Road – eastbound at Jefferson Street.”
- “Starin Road – westbound at Jefferson Street.”
- “Starin Road – eastbound at Newcomb Street.”
- “Greenway Court – eastbound at Howard Road.”
- “East Main Court – westbound at East Main Street.”

Change of existing stop signs:

“Corporate Drive – westbound at Howard Road” shall be changed to “Innovation Drive – westbound at Howard Road.”

Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Binnie. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. FIRST READING APPROVED: May 3, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

## **AMENDING CHAPTER 5.20.020 ALCOHOL LICENSING, REGARDING ANNUAL TAVERN INSPECTION REQUIREMENTS.**

### **ORDINANCE AMENDING SECTION 5.20.020 RELATED TO ALCOHOL LICENSING**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do hereby ordain as follows:

**Section 1:** Whitewater Municipal Code Chapter 5.20, Section 5.20.020, is hereby amended to read as follows:

5.20.020 License – Application – Investigation – Inspection,

- (a) The City Clerk shall notify the Neighborhood Services Director, the Chief of Police and the Fire Department of any application for an alcohol license for an establishment.
- (b) The Chief of Police, or his or her designee, shall investigate the applicant's arrest and conviction record and furnish the information to the City Council in writing.
- (c) The Neighborhood Services Director or his or her designee shall inspect the premises to determine whether the premises sought to be licensed complies with the State Building Code, the State Plumbing Code, City of Whitewater Zoning Ordinances, and other applicable City ordinances, and shall furnish the information to the City Council in writing.
- (d) The applicant shall supply the City Clerk with proof that the premises to be licensed has passed a City of Whitewater Fire Department fire inspection within six (6) months of the date the license will be issued.
- (e) The applicant shall supply the City Clerk with the following:
  - (1) Proof, supplied by the Wisconsin Department of Health Services, that the establishment has a current valid restaurant or food service license issued by the Wisconsin Department of Health Services, or
  - (2) Proof, supplied by the Wisconsin Department of Health Services, that the establishment complies with the sanitation regulations of the State of Wisconsin Department of Health Services related to service of alcohol beverages for the type of license requested.
- (f) In determining the suitability of the applicant, consideration shall be given to the moral character and the financial responsibility of the applicant, appropriateness of the location and premises where such licensed business is to be conducted, and generally the applicant's fitness for the trust to be reposed.
- (g) No retail class "B" or "Class B" license shall be issued unless the premises to be licensed conform to the sanitary, safety and health requirements of the State Building Code, the State Plumbing Code, and the rules and regulations of the State Board of Health applicable to restaurants, and also conform to all ordinances and regulations adopted by the city.
- (h) Each premises for which a class "B" or "Class B" license is granted must be connected with the city water and sewerage facilities, must be properly lighted and ventilated and supplied with separate sanitary toilet and lavatory facilities, equipped with running water, for each sex.

Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Binnie. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. ADOPTED: May 3, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**AMENDING CHAPTER 11, REDUCING SPEED LIMITS ON STARIN ROAD.**

**AMENDING SECTION 11.08.012 SPEED LIMITS – DECREASED**

# CA-A

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, does hereby ordain as follows:

SECTION 1. Section 11.08.012 entitled Speed Limits – Decreased, is hereby amended by adding the following:

“TWENTY-FIVE MILES PER HOUR: Starin Road between Fremont Street and Jefferson Street,”

“THIRTY MILES PER HOUR: Starin Road between Jefferson Street and Newcomb Street.”

SECTION 2. This ordinance shall take effect upon passage and publication is provided by law.

Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Butler. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. ADOPTED: May 3, 2011.

Kevin M. Brunner, City Manager

Michelle R. Smith, City Clerk

## **AMENDING CHAPTER 11, PARKING REGULATIONS, TO PROHIBIT PARKING ON NEWLY CONSTRUCTED PORTION OF STARIN ROAD.**

### **AMENDING SECTION 11.16.150 PARKING PROHIBITED**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, does hereby ordain as follows:

SECTION 1. Section 11.16.150 entitled Street Index of Parking Restrictions, is hereby amended by adding the following:

No parking on both sides of Starin Road – Fremont Street to Newcomb Street.

SECTION 2. This ordinance shall take effect upon passage and publication as provided by law.

Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Butler. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. ADOPTED: May 3, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

## **AMENDING CHAPTER 11.16.080, TO PROHIBIT PARKING ON STREETS LISTED IN SECTION 11.16.150 OF MUNICIPAL CODE.**

### **AMENDING SECTION 11.16.080 PARKING PROHIBITED**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, does hereby ordain as follows:

SECTION 1. Section 11.16.080 entitled No parking at all times, is hereby amended to read as follows:

It is unlawful for the operator of any vehicle to park such vehicle at all times on a street to designated in the table in Section 11.16.150 of this chapter.

SECTION 2. This ordinance shall take effect upon passage and publication as provided by law.

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Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Butler. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. ADOPTED: May 3, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**AUTHORIZATION TO PURCHASE JET MACHINE FOR WWTP IMPROVEMENTS PROJECT CONTRACT 4-2009.** It was moved by councilmember Olsen and seconded by councilmember Winship to authorize purchase of a jet machine for Wastewater Treatment Plant improvements on Contract 4-2009. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**CONSIDERATION OF AWARD OF CONTRACT 1-2011 TO MANN BROS. FOR FIVE POINTS INTERSECTION IMPROVEMENTS.** It was moved by Olsen and seconded by Butler to award contract 1-2011 to Mann Bros. for Five Points Intersection Improvements. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**DISCUSSION AND POSSIBLE ACTION REGARDING ELECTRICAL UPDATES AT CRAVATH LAKEFRONT PARK.** It was moved by Olsen and seconded by Winship to approve proposed Phase 2 electrical updates at Cravath Lakefront Park with funding from the contingency fund. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**REQUEST TO INCREASE BUDGET FOR POLICE CHIEF RECRUITMENT/SELECTION OUTSIDE SERVICES.** Jan Bilgen, Police Commission presented the need for more than \$8,000 to be dedicated to Police Chief recruitment/selection outside services. It was moved by Stewart and seconded by Binnie to increase the budget for Police Chief recruitment/Selection outside services. An exact amount will be brought for Council's approval at a later meeting. AYES: Butler, Winship, Binnie, Singer, Stewart, Olsen. NOES: Kienbaum. ABSENT: None.

**DISCUSSION/POSSIBLE ACTION ON AMENDMENT TO CITY BUILDING PERMIT FEES.**  
Item pulled from agenda. This will be discussed at a future meeting.

**DISCUSSION/DIRECTION TO CITY STAFF ON ZONING ORDINANCE UPDATING/REDRAFTING.** Singer stated that he would be in favor of Option 3 (\$50,000) to update Whitewater's zoning ordinances. The funding could be in part from savings gained from slow planning services use this year and the amount could be budgeted in the 2012 budget. It was moved by Singer and seconded by Olsen to approve Option 3 and direct City Staff to prepare an RFP which would include a complete update of City of Whitewater zoning ordinances. Brunner indicated that SWRPAC may be able to perform this update. Jeff Knight (CDA member), 405 Panther Court, believes that this ordinance update would be important for the long term growth and development of the City. Winship expressed a concern that some may take this opportunity to weaken zoning regulations around campus. He requested an interim report to compare the Whitewater community with similar communities. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**APPROVAL OF CONTRACTS FOR DOWNTOWN MAIN STREET OVERLAY PROJECT.**  
It was moved by Olsen and seconded by Butler to approve contracts for the downtown Main Street Overlay Project. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**CONSIDERATION OF LAND EXCHANGE AGREEMENT BETWEEN CITY OF WHITEWATER AND CA POPE, INC FOR THE JANESVILLE/WALWORTH/SUMMIT STREET INTERSECTION IMPROVEMENT.** It was moved by Olsen and seconded by Butler to approve a land exchange agreement between the City of Whitewater and C.A. Pope, Inc for the

Janesville/Walworth/Summit Street Intersection Improvement. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**COUNCILMEMBER REQUEST FOR FUTURE AGENDA ITEMS.** Councilmember Kienbaum suggested further discussion of state funding cuts. Councilmember Stewart requested updates during the redistricting process.

**EXECUTIVE SESSION.** It was moved by Singer and seconded by Olsen to Adjourn to EXECUTIVE SESSION, not to reconvene, per Wisconsin Statutes 19.85(1)(c) "Deliberating or negotiating the purchasing of public properties, the investing of public funds, or conducting other specified public business, whenever competitive or bargaining reasons require a closed session." And 19.85 (1)(g) "Conferring with legal counsel for the governmental body who is rendering oral or written advice concerning strategy to be adopted by the body with respect to litigation in which it is or is likely to become involved." Item to be Discussed: City's options for Enforcements Concerning Encroachment on Effigy Mounds Preserve. AYES: Butler, Olsen, Winship, Binnie, Singer, Kienbaum, Stewart. NOES: None. ABSENT: None. The meeting adjourned at 7:40 p.m.

Respectfully submitted,

**ABSTRACT/SYNOPSIS OF THE ESSENTIAL ELEMENTS OF THE OFFICIAL ACTIONS OF  
THE COMMON COUNCIL OF THE CITY OF WHITEWATER, WALWORTH AND  
JEFFERSON COUNTIES, WISCONSIN.**

May 17, 2011

The Council meeting of the Common Council was called to order at 6:30 p.m. by Council President Singer. MEMBERS PRESENT: Binnie, Singer, Kienbaum, Olsen, Stewart, Winship, Butler. MEMBERS ABSENT: None. LEGAL COUNSEL PRESENT: Wallace McDonell.

It was moved by Olsen and seconded by Winship to approve the Council minutes of April 19, 2011 and to acknowledge receipt and filing of the: Whitewater University Technology Park Board Minutes of April 13, 2011; Library Board Minutes of April 11, 2011; Plan Commission Minutes of February 14 and April 11, 2011; Report of Manually-Produced Checks for May, 2011; Park and Recreation Board Minutes of April 4, 2011 and Financial Reports for May, 2011. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**APPROVAL OF PAYMENT OF INVOICES.** It was moved by Olsen and seconded by Winship to approve payment of city invoices processed through May 12, 2011 in the total sum of \$104,986.97. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None.

**REPORTS:** City Manager Brunner updated Council on the status of the State Budget. Brunner presented the Proclamation for National Police Week to Interim Police Chief Lisa Otterbacher. CDA Coordinator Mary Nimm gave the CDA Quarterly Report. Councilmember Singer asked that future CDA reports include information on community feedback. Councilmember Kienbaum stated the Innovation Center Open House was well organized and the building is very nice.

**HEARING OF CITIZEN COMMENTS.** Mark Wokasch, 146 W. Main St. owner of Fat Jack's stated the current on-street parking regulations are frustrating and that the parking limitations provide problems for his customers.

**RESOLUTION AUTHORIZING THE ISSUANCE AND SALE OF \$940,000 WATER WORKS SYSTEM REVENUE BONDS SERIES 2011, CITY OF WHITEWATER, WALWORTH AND JEFFERSON COUNTIES, WISCONSIN, AND PROVIDING FOR THE PAYMENT OF THE BONDS AND OTHER DETAILS WITH RESPECT TO THE BONDS.** Finance Director Doug Saubert introduced Lisa Boyson from Robert W. Baird Co. Boyson stated that although originally they went out for a \$950,000 bond revenue, the bids were so good that the amount was reduced to \$940,000. Four bids were received and the interest rate was 3.41%. It was noted that this bond issue is to cover the costs of the automatic meter reading program and the North Street project.

**A RESOLUTION AUTHORIZING THE ISSUANCE AND SALE OF  
\$940,000 WATERWORKS SYSTEM REVENUE BONDS, SERIES 2011  
OF THE CITY OF WHITEWATER, WALWORTH AND  
JEFFERSON COUNTIES, WISCONSIN,  
AND PROVIDING FOR THE PAYMENT OF THE BONDS AND  
OTHER DETAILS WITH RESPECT TO THE BONDS**

WHEREAS, the City of Whitewater, Walworth and Jefferson Counties, Wisconsin (the "City") owns and operates its Waterworks System (the "System") which is operated for a public purpose as a public utility; and

WHEREAS, under the provisions of Section 66.0621, Wisconsin Statutes, any municipality in the State of Wisconsin may, by action of its governing body, provide funds for extending, adding

*Not yet proofread*

to and improving a public utility from the proceeds of bonds, which bonds are to be payable only from the income and revenues derived from the operation of such utility and are to be secured by a pledge of the revenues of the utility; and

WHEREAS, pursuant to a resolution adopted on August 17, 2010 (the "2010 Resolution"), the City has heretofore issued its Waterworks System Revenue Refunding Bonds, Series 2010, dated September 7, 2010 (the "Prior Issue"), which bonds are payable from the income and revenues of the System; and

WHEREAS, the 2010 Resolution permits the issuance of additional bonds payable from revenues of the System on a parity with the Prior Issue upon compliance with certain conditions; and

WHEREAS, to the best of the City Council's knowledge, information and belief, the City complies with such conditions; and

WHEREAS, the City has determined that certain additions, improvements and extensions to the System consisting of additions, improvements and extensions to the System (the "Project") are necessary to adequately supply the needs of the City and the residents thereof; and

WHEREAS, it is necessary, desirable and in the best interests of the City to authorize and sell revenue bonds for such purpose payable solely from the revenues to be derived from the operation of the System, which bonds are to be authorized and issued pursuant to the provisions of Section 66.0621, Wisconsin Statutes on a parity with the Prior Issue; and

WHEREAS, other than the Prior Issue, the City has no bonds or obligations outstanding which are payable from the income and revenues of the System; and

WHEREAS, the City has directed its financial advisor, Robert W. Baird & Co. Incorporated, Milwaukee, Wisconsin ("Baird") to take the steps necessary to sell such revenue bonds; and

WHEREAS, Baird, in consultation with the officials of the City, prepared an Official Notice of Sale (a copy of which is attached hereto as Exhibit A and incorporated herein by this reference) setting forth the details of and the bid requirements for the bonds and indicating that the bonds would be offered for public sale on May 17, 2011; and

WHEREAS, the City Clerk (in consultation with Baird) caused a form of notice of the sale to be published and/or announced and caused the Official Notice of Sale to be distributed to potential bidders offering the bonds for public sale on May 17, 2011; and

WHEREAS, the City has duly received bids for the bonds as described on the Bid Tabulation attached hereto as Exhibit B and incorporated herein by this reference (the "Bid Tabulation"); and

WHEREAS, it has been determined that the bid proposal (the "Proposal") submitted by the financial institution listed first on the Bid Tabulation fully complies with the bid requirements set forth in the Official Notice of Sale and is deemed to be the most advantageous to the City. Baird has recommended that the City accept the Proposal. A copy of said Proposal submitted by such institution (the "Purchaser") is attached hereto as Exhibit C and incorporated herein by this reference.

NOW, THEREFORE, the City Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do resolve that:

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Section 1A. Ratification of the Official Notice of Sale and Offering Materials. The City Council of the City hereby ratifies and approves the details of the Bonds set forth in Exhibit A attached hereto as and for the details of the Bonds. The Official Notice of Sale and any other offering materials prepared and circulated by Baird are hereby ratified and approved in all respects. All actions taken by officers of the City and Baird in connection with the preparation and distribution of the Official Notice of Sale, and any other offering materials are hereby ratified and approved in all respects.

Section 1B. Authorization of Bonds. For the purpose of paying the cost of the Project, the City shall borrow on the credit of the income and revenue of the System the sum of \$940,000. Negotiable, fully-registered bonds of the City, in the denomination of \$5,000, or any whole multiple thereof, shall be issued in evidence thereof. The Bonds shall be designated "Waterworks System Revenue Bonds, Series 2011", shall be numbered from R-1 upward and shall be dated June 7, 2011. The Bonds shall bear interest at the rates per annum set forth in the Proposal and shall mature on October 1 of each year, in the years and principal amounts as set forth on the Pricing Summary attached hereto as Exhibit D-1 and incorporated herein by this reference.

Interest on the Bonds shall be payable on April 1 and October 1 of each year, commencing October 1, 2011. Interest shall be computed upon the basis of a 360-day year of twelve 30-day months and will be rounded pursuant to the rules of the Municipal Securities Rulemaking Board.

The schedule of principal and interest payments due on the Bonds is set forth on the Debt Service Schedule attached hereto as Exhibit D-2 and incorporated herein by this reference (the "Schedule").

The Bonds maturing on October 1, 2022 and thereafter shall be subject to redemption prior to maturity, at the option of the City, on October 1, 2021 or on any date thereafter. Said Bonds shall be redeemable as a whole or in part, and if in part, from maturities selected by the City and within each maturity, by lot, at the principal amount thereof, plus accrued interest to the date of redemption. If the Proposal specifies that any of the Bonds are subject to mandatory redemption, the terms of such mandatory redemption are set forth on an attachment hereto as Exhibit MRP and incorporated herein by this reference.

The schedule of maturities is found to be such that the amount of annual debt service payments is reasonable in accordance with prudent municipal utility practices.

The Bonds, together with interest thereon, shall be payable only out of the Special Redemption Fund hereinafter provided, and shall be a valid claim of the owner thereof only against the Special Redemption Fund and the revenues pledged to such Fund, and sufficient revenues are pledged to the Special Redemption Fund, and shall be used for no other purpose than to pay the principal of and interest on the Prior Issue, the Bonds and Parity Bonds as the same fall due.

Section 2. Form of the Bonds. The Bonds shall be issued in registered form and shall be executed and delivered in substantially the form attached hereto as Exhibit E and incorporated herein by this reference.

Section 3. Definitions. In addition to the words defined elsewhere in this Resolution, the following words shall have the following meanings unless the context or use indicates another or different meaning or intent:

"Annual Debt Service Requirement" means the total amount of principal and interest due in any Fiscal Year on the Prior Issue, the Bonds and Parity Bonds.

"Bond Year" means the one-year period ending on a principal payment date or mandatory redemption date for the Bonds.

"Code" means the Internal Revenue Code of 1986, as amended.

"DTC" means The Depository Trust Company, New York, New York, or any successor securities depository for the City with respect to the Bonds.

"Fiscal Year" means the fiscal year adopted by the City for the System, which is currently the calendar year.

"Net Revenues" means the Revenues minus all Operation and Maintenance Expenses of the System.

"Operation and Maintenance Expenses" means the reasonable and necessary costs of operating, maintaining, administering and repairing the System, including salaries, wages, costs of materials and supplies, insurance and audits, but excluding depreciation, debt service, tax equivalents and capital expenditures.

"Parity Bonds" means additional bonds or obligations issued on a parity as to pledge and lien with the Bonds in accordance with the provisions of Section 7 of this Resolution.

"Reserve Requirement" means an amount, determined as of the date of issuance of the Bonds, equal to the least of (a) the amount on deposit in the Reserve Account prior to the issuance of the Bonds plus 10% of the proceeds of the Bonds; (b) the maximum annual debt service on the outstanding Prior Issue and the outstanding Bonds in any Bond Year; and (c) 125% of the average annual debt service on the outstanding Prior Issue and the outstanding Bonds. If Parity Bonds which are to be secured by the Reserve Account are issued, the Reserve Requirement shall mean an amount, determined as of the date of issuance of the Parity Bonds, equal to the least of (a) the amount required to be on deposit in the Reserve Account prior to the issuance of such Parity Bonds, plus the amount permitted to be deposited therein from proceeds of the Parity Bonds pursuant to Section 148(d)(1) of the Code; (b) the maximum annual debt service on outstanding obligations secured by the Reserve Account and the Parity Bonds to be issued; and (c) 125% of average annual debt service on the outstanding obligations secured by the Reserve Account and the Parity Bonds to be issued.

"Revenues" means all income and revenue derived from operation of the System, including the revenues received from the City for services rendered to it and all moneys received from any other source, including income derived from investments.

"System" means the entire Waterworks System of the City specifically including that portion of the Project owned by the City and including all property of every nature now or hereafter owned by the City for the extraction, collection, storage, treatment, transmission, distribution, metering and discharge of industrial and potable public water, including all improvements and extensions thereto made by the City while any of the Bonds and Parity Bonds remain outstanding, including all real and personal property of every nature comprising part of or used or useful in connection with such Waterworks System and including all appurtenances, contracts, leases, franchises and other intangibles.

Section 4. Income and Revenue Funds. When the Bonds shall have been delivered in whole or in part, the Revenues shall be set aside into the following separate and special funds, which were created and established by Ordinance No. 542 adopted on May 4, 1965 continued by the 2010 Resolution and are hereby further continued and shall be used and applied as described below:

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- Revenues in amounts sufficient to provide for the reasonable and proper operation and maintenance of the System through the payment of Operation and Maintenance Expenses shall be set aside into the Waterworks System Operation and Maintenance Fund (the "Operation and Maintenance Fund").

- Revenues in amounts sufficient to pay the principal of and interest on the Prior Issue, the Bonds and Parity Bonds and to meet the Reserve Requirement shall be set aside into the Waterworks Revenue Bond and Interest Special Redemption Fund (the "Special Redemption Fund"), to be applied to the payment of the principal of and interest on the Prior Issue, the Bonds and Parity Bonds and to meet the Reserve Requirement. The monies standing in the Special Redemption Fund are irrevocably pledged to the payment of principal of and interest on the Prior Issue, the Bonds and Parity Bonds.

- Revenues in amounts sufficient to provide a proper and adequate depreciation account for the System shall be set aside into the Waterworks Depreciation Fund (the "Depreciation Fund").

The Operation and Maintenance Fund and Depreciation Fund shall be deposited as received in public depositories to be selected by the City Council in the manner required by Chapter 34, Wisconsin Statutes and may be invested in legal investments subject to the provisions of Section 66.0603(1m), Wisconsin Statutes.

Money in the Operation and Maintenance Fund shall be used to pay Operation and Maintenance Expenses as the same come due; money not immediately required for Operation and Maintenance Expenses shall be used to accumulate a reserve in the Operation and Maintenance Fund equal to estimated Operation and Maintenance Expenses for one month. Any money then available and remaining in the Operation and Maintenance Fund may be transferred to the Surplus Fund, which fund is hereby continued.

Revenues shall be deposited in the Depreciation Fund each month until the sum of \$25,000 or such larger amount as the City Council may from time to time determine to constitute an adequate and reasonable depreciation account for the System (the "Depreciation Requirement") is accumulated therein. Money in the Depreciation Fund shall be available and shall be used, whenever necessary, to restore any deficiency in the Special Redemption Fund and for the maintenance of the Reserve Account therein. When the Special Redemption Fund is sufficient for its purpose, funds in the Depreciation Fund may be expended for repairs, replacements, new construction, extensions or additions to the System. Any money on deposit in the Depreciation Fund in excess of the Depreciation Requirement which is not required during the current Fiscal Year for the purposes of the Depreciation Fund, may be transferred to the Surplus Fund.

It is the express intent and determination of the City Council that the amount of Revenues to be set aside and paid into the Special Redemption Fund (including the Reserve Account) shall in any event be sufficient to pay principal of and interest on the Prior Issue, the Bonds and Parity Bonds and to meet the Reserve Requirement, and the City Treasurer shall each Fiscal Year deposit at least sufficient Revenues in the Special Redemption Fund to pay promptly all principal and interest falling due on the Prior Issue, the Bonds and Parity Bonds and to meet the Reserve Requirement.

The Revenues so set aside for payment of the principal of and interest on the Prior Issue, the Bonds and Parity Bonds shall be set apart and shall be paid into the Special Redemption Fund not later than the 10th day of each month. The amount deposited each month shall be not less than one-sixth of the interest next coming due, plus one-twelfth of the principal next maturing.

The minimum amounts to be so deposited for debt service on the Bonds, in addition to all amounts to be deposited to pay debt service on the Prior Issue, are set forth on the Schedule.

The Special Redemption Fund shall be used for no purpose other than the payment of interest upon and principal of the Prior Issue, the Bonds and Parity Bonds promptly as the same become due and payable or to pay redemption premiums. All money in the Special Redemption Fund shall be deposited in a special account and invested in legal investments subject to Section 66.0603(1m), Wisconsin Statutes, and the monthly payments required to be made to the Special Redemption Fund shall be made directly to such account.

The Reserve Account previously established shall be continued to additionally secure the payment of principal of and interest on the Prior Issue and the Bonds. The City covenants and agrees that upon the issuance of the Bonds an amount sufficient to make the amount on deposit in the Reserve Account equal to the Reserve Requirement shall be deposited into the Reserve Account and shall be maintained therein. The amount on deposit in the Reserve Account shall be reduced from time to time to an amount equal to the Reserve Requirement at that time. Any amount withdrawn from the Reserve Account shall be transferred to the Special Redemption Fund and used to pay principal and interest on the Bonds.

The City covenants and agrees that at any time that the Reserve Account is drawn on and the amount in the Reserve Account shall be less than the Reserve Requirement, an amount equal to one-twelfth of the Reserve Requirement will be paid monthly into the Reserve Account from those funds in the Special Redemption Fund, the Operation and Maintenance Fund, the Depreciation Fund and the Surplus Fund which are in excess of the minimum amounts required by the preceding paragraphs to be paid therein until the Reserve Requirement will again have accumulated in the Reserve Account. No such payments need be made into the Reserve Account at such times as the monies in the Reserve Account are equal to the highest remaining annual debt service requirement on the Prior Issue, the Bonds and Parity Bonds secured by the Reserve Account in any Bond Year. If at any time the amount on deposit in the Reserve Account exceeds the Reserve Requirement, the excess shall be transferred to the Special Redemption Fund and used to pay principal and interest on the Bonds. If for any reason there shall be insufficient funds on hand in the Special Redemption Fund to meet principal or interest becoming due on the Prior Issue, the Bonds or Parity Bonds secured by the Reserve Account, then all sums then held in the Reserve Account shall be used to pay the portion of interest or principal on such Prior Issue, Bonds or Parity Bonds becoming due as to which there would otherwise be default, and thereupon the payments required by this paragraph shall again be made into the Reserve Account until an amount equal to the Reserve Requirement is on deposit in the Reserve Account.

Funds in the Special Redemption Fund in excess of the minimum amounts required to be paid therein plus reserve requirements may be transferred to the Surplus Fund.

Money in the Surplus Fund shall first be used when necessary to meet requirements of the Operation and Maintenance Fund including the one month reserve, the Special Redemption Fund including the Reserve Account, and the Depreciation Fund. Any money then remaining in the Surplus Fund at the end of any Fiscal Year may be used only as permitted and in the order specified in Section 66.0811(2), Wisconsin Statutes. Money thereafter remaining in the Surplus Fund may be transferred to any of the funds or accounts created by this section.

Section 5. Service to the City. The reasonable cost and value of any service rendered to the City by the System shall be charged against the City and shall be paid by it in monthly installments as the service accrues, out of the current revenues of the City collected or in the process of collection, exclusive of the revenues derived from the System, to wit: out of the tax levy of the City made by it to raise money to meet its necessary current expenses. It is hereby found and determined that the amount of such reasonable cost and value shall be equal to the lesser of the maximum Annual Debt Service Requirement or such part thereof as may be

necessary from year to year to pay the balance of an amount which, together with Revenues of the System, will produce Net Revenues equivalent to not less than 1.20 times the Annual Debt Service Requirement. Such compensation for such service rendered to the City shall, in the manner provided hereinabove, be paid into the separate and special funds described in Section 4 of this Resolution. However, such payment is subject to (a) annual appropriation by the City Council, (b) approval of the Wisconsin Public Service Commission, if necessary, and (c) applicable levy limits, if any; and neither this Resolution nor such payment shall be construed as constituting an obligation of the City to make any such appropriation over and above the reasonable cost and value of services rendered to the City or to make any subsequent payment over and above such reasonable cost and value.

Section 6. Operation of System; City Covenants. It is covenanted and agreed by the City with the owner or owners of the Bonds, and each of them, that:

(a) The City will faithfully and punctually perform all duties with reference to the System required by the Constitution and Statutes of the State of Wisconsin, including the making and collecting of reasonable and sufficient rates lawfully established for services rendered by the System, and will collect and segregate the Revenues of the System and apply them to the respective funds and accounts described hereinabove;

(b) The City will not sell, lease, or in any manner dispose of the System, including any part thereof or any additions, extensions, or improvements that may be made part thereto, except that the City shall have the right to sell, lease or otherwise dispose of any property of the System found by the City Council to be neither necessary nor useful in the operation of the System, provided the proceeds received from such sale, lease or disposal shall be paid into the Special Redemption Fund or applied to the acquisition or construction of capital facilities for use in the normal operation of the System, and such payment shall not reduce the amounts otherwise required to be paid into the Special Redemption Fund;

(c) The City will cause the improvements to the System financed by the Bonds or any Parity Bonds to be made as expeditiously as reasonably possible;

(d) The City will pay or cause to be paid all lawful taxes, assessments, governmental charges, and claims for labor, materials or supplies which if unpaid could become a lien upon the System or its Revenues or could impair the security of the Bonds;

(e) The City will maintain in reasonably good condition and operate the System, and will establish, charge and collect such lawfully established rates and charges for the service rendered by the System, so that in each Fiscal Year Net Revenues shall not be less than 120% of the Annual Debt Service Requirement, and so that the Revenues of the System herein agreed to be set aside to provide for the payment of the Prior Issue, the Bonds and Parity Bonds and the interest thereon as the same becomes due and payable, and to meet the Reserve Requirement, will be sufficient for those purposes;

(f) The City will prepare a budget not less than sixty days prior to the end of each Fiscal Year and, in the event such budget indicates that the Net Revenues for each Fiscal Year will not exceed the Annual Debt Service Requirement for each corresponding Fiscal Year by the proportion stated hereunder, will take any and all steps permitted by law to increase rates so that the aforementioned proportion of Net Revenues to the Annual Debt Service Requirement shall be accomplished as promptly as possible;

(g) The City will keep proper books and accounts relative to the System separate from all other records of the City and will cause such books and accounts to be audited annually by a recognized independent firm of certified public accountants including a balance sheet and a profit and loss statement of the System as certified by such accountants. Each such audit, in addition to whatever matters may be thought proper by the accountants to be included therein shall include the following: (1) a statement in detail of the income and expenditures of the System for the Fiscal Year; (2) a balance sheet as of the end of such Fiscal Year; (3) the accountants' comment regarding the manner in which the City has carried out the requirements of this Resolution and the accountants' recommendations for any changes or improvements in the operation of the System; (4) the number of connections to the System at the end of the Fiscal Year, for each user classification (i.e., residential, commercial, public and industrial); (5) a list of the insurance policies in force at the end of the Fiscal Year setting out as to each policy the amount of the policy, the risks covered, the name of the insurer, and the expiration date of the policy; and (6) the volume of water used. The owners of any of the Bonds shall have at all reasonable times the right to inspect the System and the records, accounts and data of the City relating thereto; and

(h) So long as any of the Bonds are outstanding the City will carry for the benefit of the owners of the Bonds insurance of the kinds and in the amounts normally carried by private companies or other public bodies engaged in the operation of similar systems. All money received for loss of use and occupancy shall be considered Revenue of the System payable into the separate funds and accounts named in Section 4 of this Resolution. All money received for losses under any casualty policies shall be used in repairing the damage or in replacing the property destroyed provided that if the City Council shall find it is inadvisable to repair such damage or replace such property and that the operation of the System has not been impaired thereby, such money shall be deposited in the Special Redemption Fund, but in that event such payments shall not reduce the amounts otherwise required to be paid into the Special Redemption Fund.

Section 7. Additional Bonds. The Bonds are issued on a parity with the Prior Issue. No bonds or obligations payable out of the Revenues of the System may be issued in such manner as to enjoy priority over the Bonds. Additional obligations may be issued if their lien and pledge is junior and subordinate to that of the Bonds. Additional obligations may be issued on a parity with the Bonds as to the pledge of Revenues of the System ("Parity Bonds") only if all of the following conditions are met:

a. The Net Revenues of the System for the Fiscal Year immediately preceding the issuance of such additional obligations must have been equal to at least 1.20 times the highest combined annual principal and interest requirements on all bonds then outstanding payable from Revenues of the System (other than Bonds and Parity Bonds being refunded) and on the additional obligations then to be issued in any Fiscal Year. Should an increase in permanent rates and charges, including those made to the City, be properly ordered and made effective during the Fiscal Year immediately prior to the issuance of such additional obligations or during that part of the Fiscal Year of issuance prior to such issuance, then Revenues for purposes of such computation shall include such additional Revenues as an independent certified public accountant, consulting professional engineer or the Wisconsin Public Service Commission may certify would have accrued during the prior Fiscal Year had the new rates been in effect during that entire immediately prior Fiscal Year.

b. The payments required to be made into the funds and accounts enumerated in Section 4 of this Resolution (including the Reserve Account, but not the Surplus Fund) must have been made in full.

c. The additional obligations must have principal maturing on October 1 of each year in which principal falls due and interest falling due on April 1 and October 1 of each year.

d. If the additional obligations are to be secured by the Reserve Account, the amount on deposit in the Reserve Account must be increased to an amount equal to the Reserve Requirement applicable upon the issuance of Parity Bonds as defined in Section 3 of this Resolution.

e. The proceeds of the additional obligations must be used only for the purpose of providing additions, extensions or improvements to the System, or to refund obligations issued for such purpose.

Section 8. Sale of Bonds. The bid of the Purchaser for the purchase price set forth in the Proposal be and it hereby is accepted and the City Manager and City Clerk are authorized and directed to execute an acceptance of the offer of said successful bidder on behalf of the City. The good faith deposit of the Purchaser shall be retained by the City Treasurer until the closing of the bond issue, and any good faith deposits submitted by unsuccessful bidders shall be promptly returned. The officers of the City are authorized and directed to do any and all acts necessary to conclude delivery of the Bonds to the Purchaser, upon receipt of the purchase price, as soon after adoption of this Resolution as is convenient.

Section 9. Application of Bond Proceeds. All accrued interest received from the sale of the Bonds shall be deposited into the Special Redemption Fund. An amount of proceeds of the Bonds sufficient to make the amount currently on deposit in the Reserve Account equal to the Reserve Requirement shall be deposited in the Reserve Account. The balance of the proceeds, less the expenses incurred in authorizing, issuing and delivering the Bonds, shall be deposited in a special fund designated as "Waterworks System Improvement Fund." Said special fund shall be adequately secured and used solely for the purpose of meeting costs of extending, adding to and improving the System, as described in the preamble hereof. The balance remaining in said Improvement Fund after paying said costs shall be transferred to the Special Redemption Fund for use in payment of principal of and interest on the Bonds.

Section 10. Amendment to Resolution. After the issuance of any of the Bonds, no change or alteration of any kind in the provisions of this Resolution may be made until all of the Bonds have been paid in full as to both principal and interest, or discharged as herein provided, except:

a. The City may, from time to time, amend this Resolution without the consent of any of the owners of the Bonds, but only to cure any ambiguity, administrative conflict, formal defect, or omission or procedural inconsistency of this Resolution; and

b. This Resolution may be amended, in any respect, with the written consent of the owners of not less than two-thirds of the principal amount of the Bonds then outstanding, exclusive of Bonds held by the City; provided, however, that no amendment shall permit any change in the pledge of Revenues derived from the System, or in the maturity of any Bond issued hereunder, or a reduction in the rate of interest on any Bond, or in the amount of the principal obligation thereof, or in the amount of the redemption premium payable in the case of redemption thereof, or change the terms upon which the Bonds may be redeemed or make any

other modification in the terms of the payment of such principal or interest without the written consent of the owner of each such Bond to which the change is applicable.

Section 11. Defeasance. When all Bonds have been discharged, all pledges, liens, covenants and other rights granted to the owners thereof by this Resolution shall cease. The City may discharge all Bonds due on any date by depositing into a special account on or before that date a sum sufficient to pay the same in full; or if any Bonds should not be paid when due, it may nevertheless be discharged by depositing into a special account a sum sufficient to pay it in full with interest accrued from the due date to the date of such deposit. The City, at its option, may also discharge all Bonds called for redemption on any date when they are prepayable according to their terms, by depositing into a special account on or before that date a sum sufficient to pay them in full, with the required redemption premium, if any, provided that notice of redemption has been duly given as required by this Resolution. The City, at its option, may also discharge all Bonds of said issue at any time by irrevocably depositing in escrow with a suitable bank or trust company a sum of cash and/or bonds or securities issued or guaranteed as to principal and interest of the U.S. Government, or of a commission, board or other instrumentality of the U.S. Government, maturing on the dates and bearing interest at the rates required to provide funds sufficient to pay when due the interest to accrue on each of said Bonds to its maturity or, at the City's option, if said Bond is prepayable to any prior date upon which it may be called for redemption, and to pay and redeem the principal amount of each such Bond at maturity, or at the City's option, if said Bond is prepayable, at its earliest redemption date, with the premium required for such redemption, if any, provided that notice of the redemption of all prepayable Bonds on such date has been duly given or provided for. Upon such payment or deposit, in the amount and manner provided by this Section, all liability of the City with respect to the Bonds shall cease, terminate and be completely discharged, and the owners thereof shall be entitled only to payment out of the money so deposited.

Section 12. Investments and Arbitrage. Monies accumulated in any of the funds and accounts referred to in Sections 4 and 9 hereof which are not immediately needed for the respective purposes thereof, may be invested in legal investments subject to the provisions of Sec. 66.0603(1m), Wisconsin Statutes, until needed. All income derived from such investments shall be credited to the fund or account from which the investment was made; provided, however, that at any time that the Reserve Requirement is on deposit in the Reserve Account, any income derived from investment of the Reserve Account shall be deposited into the Special Redemption Fund and used to pay principal and interest on the Bonds. A separate banking account is not required for each of the funds and accounts established under this Resolution; however, the monies in each fund or account shall be accounted for separately by the City and used only for the respective purposes thereof. The proceeds of the Bonds shall be used solely for the purposes for which they are issued but may be temporarily invested until needed in legal investments. No such investment shall be made in such a manner as would cause the Bonds to be "arbitrage bonds" within the meaning of Section 148 of the Code or the Regulations of the Commissioner of Internal Revenue thereunder (the "Regulations").

An officer of the City, charged with the responsibility for issuing the Bonds, shall, on the basis of the facts, estimates and circumstances in existence on the date of closing, make such certifications as are necessary to permit the conclusion that the Bonds are not "arbitrage bonds" under Section 148 of the Code or the Regulations.

Section 13. Resolution a Contract. The provisions of this Resolution shall constitute a contract between the City and the owner or owners of the Bonds, and after issuance of any of the Bonds no change or alteration of any kind in the provisions of this Resolution may be made,

except as provided in Section 10, until all of the Bonds have been paid in full as to both principal and interest. The owner or owners of any of the Bonds shall have the right in addition to all other rights, by mandamus or other suit or action in any court of competent jurisdiction, to enforce such owner's or owners' rights against the City, the governing body thereof, and any and all officers and agents thereof including, but without limitation, the right to require the City, its governing body and any other authorized body, to fix and collect rates and charges fully adequate to carry out all of the provisions and agreements contained in this Resolution.

Section 14. Utilization of The Depository Trust Company Book-Entry-Only System. In order to make the Bonds eligible for the services provided by The Depository Trust Company, New York, New York ("DTC"), the City agrees to the applicable provisions set forth in the Blanket Issuer Letter of Representations previously executed on behalf of the City and on file in the City Clerk's office.

Section 15. Payment of the Bonds; Fiscal Agent. The principal of and interest on the Bonds shall be paid by Associated Trust Company, National Association, which is hereby appointed as the City's registrar and fiscal agent pursuant to the provisions of Section 67.10(2), Wisconsin Statutes (the "Fiscal Agent"). The Fiscal Agency Agreement between the City and the Fiscal Agent shall be substantially in the form attached hereto as Exhibit F.

Section 16. Persons Treated as Owners; Transfer of Bonds. The City shall cause books for the registration and for the transfer of the Bonds to be kept by the Fiscal Agent. The person in whose name any Bond shall be registered shall be deemed and regarded as the absolute owner thereof for all purposes and payment of either principal or interest on any Bond shall be made only to the registered owner thereof. All such payments shall be valid and effectual to satisfy and discharge the liability upon such Bond to the extent of the sum or sums so paid.

Any Bond may be transferred by the registered owner thereof by surrender of the Bond at the office of the Fiscal Agent, duly endorsed for the transfer or accompanied by an assignment duly executed by the registered owner or his attorney duly authorized in writing. Upon such transfer, the City Manager and City Clerk shall execute and deliver in the name of the transferee or transferees a new Bond or Bonds of a like aggregate principal amount, series and maturity and the Fiscal Agent shall record the name of each transferee in the registration book. No registration shall be made to bearer. The Fiscal Agent shall cancel any Bond surrendered for transfer.

The City shall cooperate in any such transfer, and the City Manager and City Clerk are authorized to execute any new Bond or Bonds necessary to effect any such transfer.

Section 17. Record Date. The fifteenth day of each calendar month next preceding each interest payment date shall be the record date for the Bonds (the "Record Date"). Payment of interest on the Bonds on any interest payment date shall be made to the registered owners of the Bonds as they appear on the registration book of the City at the close of business on the Record Date.

Section 18. Compliance with Federal Tax Laws. (a) The City represents and covenants that the projects financed by the Bonds and their ownership, management and use will not cause the Bonds to be "private activity bonds" within the meaning of Section 141 of the Code. The City further covenants that it shall comply with the provisions of the Code to the extent necessary to maintain the tax-exempt status of the interest on the Bonds including, if applicable, the rebate requirements of Section 148(f) of the Code. The City further covenants that it will not take any action, omit to take any action or permit the taking or omission of any action within its control (including, without limitation, making or permitting any use of the proceeds of the Bonds) if

taking, permitting or omitting to take such action would cause any of the Bonds to be an arbitrage bond or a private activity bond within the meaning of the Code or would otherwise cause interest on the Bonds to be included in the gross income of the recipients thereof for federal income tax purposes. The City Clerk or other officer of the City charged with the responsibility of issuing the Bonds shall provide an appropriate certificate of the City certifying that the City can and covenanting that it will comply with the provisions of the Code and Regulations.

(b) The City also covenants to use its best efforts to meet the requirements and restrictions of any different or additional federal legislation which may be made applicable to the Bonds provided that in meeting such requirements the City will do so only to the extent consistent with the proceedings authorizing the Bonds and the laws of the State of Wisconsin and to the extent that there is a reasonable period of time in which to comply.

The foregoing covenants shall remain in full force and effect, notwithstanding the defeasance of the Bonds, until the date on which all of the Bonds have been paid in full.

Section 19. Designation as Qualified Tax-Exempt Obligations. The Bonds are hereby designated as "qualified tax-exempt obligations" for purposes of Section 265 of the Code, relating to the ability of financial institutions to deduct from income for federal income tax purposes, interest expense that is allocable to carrying and acquiring tax-exempt obligations.

Section 20. Official Statement. The City Council hereby approves the Preliminary Official Statement with respect to the Bonds and deems the Preliminary Official Statement as "final" as of its date for purposes of SEC Rule 15c2-12 promulgated by the Securities and Exchange Commission pursuant to the Securities and Exchange Act of 1934 (the "Rule"). All actions taken by officers of the City in connection with the preparation of such Preliminary Official Statement and any addenda to it or Final Official Statement are hereby ratified and approved. In connection with the closing of the Bonds, the appropriate City official shall certify the Preliminary Official Statement and any addenda or Final Official Statement. The City Clerk shall cause copies of the Preliminary Official Statement and any addenda or Final Official Statement to be distributed to the Purchaser.

Section 21. Continuing Disclosure. The continuing disclosure requirements of the Rule are not applicable to the Bonds because the Bonds are a primary offering of less than \$1,000,000.

Section 22. Record Book. The City Clerk shall provide and keep the transcript of proceedings as a separate record book (the "Record Book") and shall record a full and correct statement of every step or proceeding had or taken in the course of authorizing and issuing the Bonds in the Record Book.

Section 23. Bond Insurance. If the Purchaser determines to obtain municipal bond insurance with respect to the Bonds, the officers of the City are authorized to take all actions necessary to obtain such municipal bond insurance. The City Manager and City Clerk are authorized to agree to such additional provisions as the bond insurer may reasonably request and which are acceptable to the City Manager and City Clerk including provisions regarding restrictions on investment of Bond proceeds, the payment procedure under the municipal bond insurance policy, the rights of the bond insurer in the event of default and payment of the Bonds by the bond insurer and notices to be given to the bond insurer. In addition, any reference required by the bond insurer to the municipal bond insurance policy shall be made in the form of Bond provided herein.

Section 24. Execution of the Bonds; Closing; Professional Services. The Bonds shall be issued in printed form, executed on behalf of the City by the manual or facsimile signatures of

the City Manager and City Clerk, authenticated, if required, by the Fiscal Agent, sealed with its official or corporate seal, if any, or a facsimile thereof, and delivered to the Purchaser upon payment to the City of the purchase price thereof, plus accrued interest to the date of delivery (the "Closing"). The facsimile signature of either of the officers executing the Bonds may be imprinted on the Bonds in lieu of the manual signature of the officer but, unless the City has contracted with a fiscal agent to authenticate the Bonds, at least one of the signatures appearing on each Bond shall be a manual signature. In the event that either of the officers whose signatures appear on the Bonds shall cease to be such officers before the Closing, such signatures shall, nevertheless, be valid and sufficient for all purposes to the same extent as if they had remained in office until the Closing. The aforesaid officers are hereby authorized and directed to do all acts and execute and deliver the Bonds and all such documents, certificates and acknowledgements as may be necessary and convenient to effectuate the Closing. The City hereby authorizes the officers and agents of the City to enter into, on its behalf, agreements and contracts in conjunction with the Bonds, including but not limited to agreements and contracts for legal, trust, fiscal agency, disclosure and continuing disclosure, and rebate calculation services. Any such contract heretofore entered into in conjunction with the issuance of the Bonds is hereby ratified and approved in all respects.

Section 25. Conflicting Ordinances or Resolutions. All prior ordinances, resolutions (other than the 2010 Resolution), rules, or orders, or parts thereof heretofore enacted, adopted or entered, in conflict with the provisions of this Resolution, are hereby repealed and this Resolution shall be in effect from and after its passage. In case of any conflict between this Resolution and the 2010 Resolution, the 2010 Resolution shall control so long as any bonds of the Prior Issue authorized by such resolution are outstanding.

Adopted, approved and recorded May 17, 2011.

Resolution introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Winship. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. DATE: May 17, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**APPROVAL OF AMENDED RIGHT-OF-WAY PLAT, RESOLUTION OF NECESSITY, AND RELOCATION ORDER.**

**RESOLUTION ESTABLISHING A DETERMINATION  
OF NECESSITY FOR  
PERMANENT LIMITED EASEMENTS;  
TEMPORARY LIMITED CONSTRUCTION EASEMENTS, AND  
AUTHORIZING NEGOTIATIONS FOR SUCH ACQUISITION  
AND AUTHORIZING CONDEMNATION, IF NECESSARY,  
FOR THE WHITON AND MAIN STREET TRAFFIC SIGNALS PROJECT**

**WHEREAS**, the City of Whitewater, Walworth and Jefferson Counties, has decided that public necessity demands the installation and construction of traffic signals at the intersection of Whiton and Main Street in the City of Whitewater, and

**WHEREAS**, on November 4, 2009, the City of Whitewater entered into an agreement with the State of Wisconsin, Department of Transportation for the funding of the installation and

construction of traffic signals at the intersection of Whiton Street and Main Street in the City of Whitewater, and

**WHEREAS**, public necessity demands that the City of Whitewater acquire permanent limited easements for traffic signal installation and operation, and

**WHEREAS**, public necessity demands that the City of Whitewater acquire temporary limited easements required for the installation and construction of said traffic signals,

Now, therefore, **BE IT RESOLVED**, by the Common Council of the City of Whitewater that the determination of necessity for 1) acquisition of permanent limited easements for placement and operation of traffic signals, and 2) acquisition of temporary limited easements for the installation and construction of traffic signals is hereby established; and

**BE IT FURTHER RESOLVED** that the attached Relocation Order is hereby approved, and the City Attorney, or agent for the City of Whitewater at the direction of the City Attorney, is hereby authorized and directed to serve the relocation order on the Clerk in and for Walworth County, Wisconsin, and

**BE IT FURTHER RESOLVED** that the City Attorney, or agent for the City of Whitewater at the direction of the City Attorney, is hereby authorized and directed to negotiate for the acquisition of those easements required for the purposes above stated, and in the event said easements cannot be obtained by negotiation, the City Attorney is hereby authorized and directed to take, by condemnation, those easements required for City purposes.

Resolution introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Winship. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. DATE: May 17, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**SECOND READING OF AMENDING CHAPTER 11.12.011, STOP SIGNS TO ADD ADDITIONAL STOP SIGN LOCATIONS.** Approved on consent agenda.

## **AN ORDINANCE AMENDING SECTION 11.12.011 STOP SIGNS**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, does hereby ordain as follows:

**SECTION 1:** Whitewater Municipal Code Section 11.12.011, entitled Stop Signs, is hereby amended as follows:

By adding the following new stop signs to the Street Index of Stop Signs:

- "Fremont Street northbound at Starin Road."
- "Fremont Street – southbound at Starin Road."
- "Jefferson Street – northbound at Starin Road."
- "Jefferson Street – southbound at Starin Road."
- "Starin Road – eastbound at Jefferson Street."
- "Starin Road – westbound at Jefferson Street."
- "Starin Road – eastbound at Newcomb Street."
- "Greenway Court – eastbound at Howard Road."

“East Main Court – westbound at East Main Street.”

Change of existing stop signs:

“Corporate Drive – westbound at Howard Road” shall be changed to “Innovation Drive – westbound at Howard Road.”

Ordinance introduced by Councilmember Olsen, who moved its adoption. Seconded by Councilmember Winship. AYES: Butler, Winship, Binnie, Singer, Kienbaum, Stewart, Olsen. NOES: None. ABSENT: None. DATE: May 17, 2011.

Kevin M. Brunner, City Manager

Michele R. Smith, City Clerk

**JOHNSON BLOCK'S PRESENTATION OF 2010 CITY AUDIT AND MANAGEMENT LETTER.** Kevin Krysinski of Johnson Block, the City's auditing firm, presented the annual city audit. He reported that the City's undesignated fund balance has a little more than 20% of the city's general operating budget. The city received a \$750,000 advance from the CDA and they recommend the City and the CDA formalize the terms of the advance. Krysinski also recommended that the City establish a separate University Technology Board fund. Finance Director Saubert stated there are some savings this year due to the open Chief of Police position as well as other retirements. Councilmember Singer requested that the Finance director provide council with a report of projected and actual expenses within 30 days. It was moved by Binnie and seconded by Winship to acknowledge receipt and filing of the 2010 City Audit and Management Report and Management Letter. AYES: Olsen, Butler, Winship, Binnie, Singer, Stewart, Kienbaum. Councilmember Stewart requested a review of the Parkland Acquisition and the Parkland development Funds.

**DISCUSSION AND POSSIBLE DIRECTION REGARDING CITY BUILDING PERMIT FEES.** Councilmember Singer indicated that his request for review of the fees was a result of discussions and input with local developers, investors and community stakeholders. Methods to attract businesses and people to the community were reviewed. One area mentioned was Whitewater's building permit fees in comparison with those charged by other communities. It was noted that most communities use a “per square footage” charge for building permit fees. City Manager Asst. Clapper stated that in comparison with surrounding communities, Whitewater is third lowest for fee charges. Clapper agreed that charging by the square foot would be the best process. Councilmember Winship questioned the small, remodeling projects and what the permit costs would be for those jobs. Winship recommended looking into surrounding communities for remodeling fees as well. It was moved by Singer and seconded by Olsen to change the building permit fee structure for new construction to a 12 cent per square foot charge. AYES: Kienbaum, Butler, Singer, Binnie, Olsen, Winship. NOES: Stewart. Building permit fee charges for electrical, heating and remodeling will be reviewed and included at a future meeting.

**AUTHORIZATION TO SELL EXCESS VEHICLES.** It was moved by Olsen and seconded by Winship to authorize the sale of excess vehicles as provided by City staff members. AYES: Kienbaum, Olsen, Singer, Stewart, Butler, Winship, Binnie. NOES: None.

**REPORT ON WARD REAPPORTIONMENT(REDISTRICTING) PROCESS.** City Clerk Michele Smith stated that once the Counties provide census mapping information to her office, the City has 60 days to prepare a redistricting plan and present it to Council for approval. Both Counties have held open hearings on their plans and have just provided information to the Clerk's office. Smith reported that past practice has been to have city staff review the census blocks, prepare a proposal, and bring it forth to Council for their review and approval. At this point, all information is available via a secure website, and communities are not authorized to print any of the maps at this time. Smith indicated that trainings are being scheduled by each County, and further information is forthcoming. Councilmember Winship reminded everyone that the 2010 census information would not take into account the population of the newly-constructed Starin Hall, and wanted to be sure everyone took that into consideration.

**APPOINTMENT OF CITIZEN MEMBER TO POLICE COMMISSION TO REPLACE RESIGNED MEMBER ROSA VERDUZCO.** Council President Singer and City Manager Brunner have recommended that in view of the large number of applications received for the recent Police Commission position, they would prefer recommending a replacement for Rosa Verduzco's position from that pool of applicants. Singer and Brunner recommend the appointment of Kenneth Kidd to serve out Rosa Verduzco's unexpired term. It was moved by Singer and seconded by Olsen to appoint Kenneth Kidd to the open position on Police Commission. AYES: Singer, Olsen, Butler, Kienbaum, Stewart, Winship, Binnie. NOES: None.

**COUNCILMEMBER REQUEST FOR FUTURE AGENDA ITEMS.** Councilmember Binnie requested a follow up on the auditor's report on insurance with the banks. Kienbaum requested to have an update on the governor's proposals.

**ADJOURN.** It was moved by Olsen and seconded by Winship to adjourn the meeting. AYES: Olsen, Winship, Binnie, Singer, Kienbaum, Stewart, Butler. NOES: None. ABSENT: None. The meeting adjourned at 7:30 p.m.

Respectfully submitted,

Michele R. Smith, City Clerk

**Report Criteria:**

Detail report.  
Invoices with totals above \$0.00 included.  
Paid and unpaid invoices included.

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	GL Account Number
<b>ADVANTAGE SAFETY PLUS</b>						
4998	ADVANTAGE SAFETY PLUS	3002	WATER/BLDG MAINTENANCE	06/08/2011	29.95	610-61935-350
4998	ADVANTAGE SAFETY PLUS	3153	GEN BLDG/BLDG MAINTENANC	06/08/2011	163.50	100-51600-355
4998	ADVANTAGE SAFETY PLUS	3153	LIBRARY/BLDG MAINTENANCE	06/08/2011	53.50	100-55111-355
Total ADVANTAGE SAFETY PLUS:					246.95	
<b>ALL PEST CONTROL</b>						
4613	ALL PEST CONTROL	2011-1537	COMMUNITY BLDG/ PEST CON	06/08/2011	57.00	100-51600-245
Total ALL PEST CONTROL:					57.00	
<b>AMERICAN HEALTH &amp; SAFETY</b>						
6184	AMERICAN HEALTH & SAFETY	824590	RESCUE/OPERATING SUPPLIES	08/08/2011	148.00	100-52300-340
Total AMERICAN HEALTH & SAFETY:					148.00	
<b>AMERICAN PLANNING ASSOC</b>						
114	AMERICAN PLANNING ASSOC	046194-1126	NEIGHBORHOOD SVC/SUBSCR	06/08/2011	405.00	100-52400-320
Total AMERICAN PLANNING ASSOC:					405.00	
<b>AMERICAN WATER WORKS</b>						
26	AMERICAN WATER WORKS	7000339139	WATER/MEMBERSHIP DUES	06/08/2011	325.00	610-61935-350
Total AMERICAN WATER WORKS:					325.00	
<b>AROPA DESIGNS</b>						
880	AROPA DESIGNS	31322	RESCUE/OPERATING SUPPLIE	06/08/2011	228.40	100-52300-340
860	AROPA DESIGNS	31565	REC/COACHES SHIRTS & HATS	06/08/2011	1,048.80	100-55300-341
860	AROPA DESIGNS	31578	REC/PANTS	06/08/2011	338.00	100-55300-341
850	AROPA DESIGNS	31604	REC/HATS & VISORS	06/08/2011	441.00	100-55300-341
Total AROPA DESIGNS:					2,056.20	
<b>AT&amp;T</b>						
3917	AT&T	3917-060811	GEN BLDG/PHONE	06/08/2011	69.65	100-51600-225
3917	AT&T	3917-060811	INNOVATION CTR/PHONE	06/08/2011	243.61	900-56500-225
Total AT&T:					313.26	
<b>BAKER GLASS LLLC</b>						
6241	BAKER GLASS LLLC	11699	WATER/WINDOW GLASS	06/08/2011	188.00	610-61935-350
Total BAKER GLASS LLLC:					188.00	
<b>BARCO PRODUCTS CO</b>						
2479	BARCO PRODUCTS CO	041102266	INNOVATION CTR/4 TRASH RE	06/08/2011	1,690.50	440-57663-844
Total BARCO PRODUCTS CO:					1,690.50	
<b>BAUER, COURTNEY</b>						
6237	BAUER, COURTNEY	AMERICAN HE	RESCUE/REIMBURSE INSTRUC	06/09/2011	25.00	100-52300-154

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	GL Account Number
Total BAUER, COURTNEY:					25.00	
<b>CGC INC</b>						
2005	CGC INC	31515	NORTH ST BRIDGE/CONSULTI	06/08/2011	8,260.95	491-57500-820
Total CGC INC:					8,260.95	
<b>CHULA VISTA RESORT</b>						
1480	CHULA VISTA RESORT	A60412	POLICE INV/VALADEZ	06/08/2011	234.00	100-52120-154
Total CHULA VISTA RESORT:					234.00	
<b>CITGO</b>						
5404	CITGO	5404-060811	POLICE PATROL/GAS	06/08/2011	3,293.88	100-52110-351
5404	CITGO	5404-060811	POLICE INV/GAS	06/08/2011	448.49	100-52120-351
5404	CITGO	5404-060811	FIRE/GAS	06/08/2011	685.70	100-52200-351
5404	CITGO	5404-060811	RESCUE/GAS	06/08/2011	1,151.25	100-52300-351
5404	CITGO	5404-060811	CSO/GAS	06/08/2011	289.76	100-52140-351
Total CITGO:					5,869.08	
<b>COACH S LOCKER, THE</b>						
495	COACH S LOCKER, THE	363558	REC/BASES	06/08/2011	130.00	100-56300-341
Total COACH S LOCKER, THE:					130.00	
<b>COLEMAN, LAVONNE</b>						
6242	COLEMAN, LAVONNE	REFUND	SENIORS/CHICAGO TRIP	06/08/2011	25.00	100-49733-55
Total COLEMAN, LAVONNE:					25.00	
<b>DIVERSIFIED BUILDING MTN</b>						
1809	DIVERSIFIED BUILDING MTN	123651	LIBRARY/MAY SVC	06/08/2011	1,556.00	100-55111-246
1809	DIVERSIFIED BUILDING MTN	123651	CITY HALL/MAY SVC	06/08/2011	3,800.00	100-51600-246
1809	DIVERSIFIED BUILDING MTN	123651	ARMORY/MAY SVC	06/08/2011	879.75	100-51600-246
1809	DIVERSIFIED BUILDING MTN	123651	CRAVATH LAKEFRONT/MAY SV	06/08/2011	1,210.00	100-51600-246
1809	DIVERSIFIED BUILDING MTN	123651	COMM BLDG/MAY SVC	06/08/2011	1,525.04	100-51600-246
1809	DIVERSIFIED BUILDING MTN	125652	INNOVATION CTR/MANITORIAL	06/08/2011	756.00	920-56500-246
1809	DIVERSIFIED BUILDING MTN	125659	INNOVATION CTR/WAX LINERS	06/08/2011	28.00	920-56500-250
Total DIVERSIFIED BUILDING MTN:					9,754.79	
<b>EMERGENCY MEDICAL PRODUCTS INC</b>						
115	EMERGENCY MEDICAL PRODU	1372453	RESCUE/OPERATING SUPPLIE	06/09/2011	195.78	100-52300-340
115	EMERGENCY MEDICAL PRODU	1372743	RESCUE/OPERATING SUPPLIE	06/09/2011	439.43	100-52300-340
115	EMERGENCY MEDICAL PRODU	1374521	RESCUE/OPERATING SUPPLIE	06/09/2011	223.68	100-52300-340
Total EMERGENCY MEDICAL PRODUCTS INC:					858.89	
<b>EPPSTEIN UHEN ARCHITECTS INC</b>						
5549	EPPSTEIN UHEN ARCHITECTS	57188	INNOVATION CTR/PROFESSIO	06/08/2011	1,330.00	440-57363-839
Total EPPSTEIN UHEN ARCHITECTS INC:					1,330.00	
<b>F J A CHRISTIANSEN ROOFING CO INC</b>						
4438	F J A CHRISTIANSEN ROOFING	PS-INV21777	LIBRARY/ROOF PMT #3	06/08/2011	40,000.00	450-57500-830
4438	F J A CHRISTIANSEN ROOFING	PS-INV22019	LIBRARY/ROOF FINAL PAYMEN	06/08/2011	2,600.00	450-57500-830

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	GL Account Number
Total F J A CHRISTIANSEN ROOFING CO INC:					42,600.00	
<b>FACILITY ENGINEERING</b>						
6100	FACILITY ENGINEERING	100505-6	LIBRARY/ROOF FINAL INVOICE	06/08/2011	990.00	450-57500-830
Total FACILITY ENGINEERING:					990.00	
<b>PERO'S AUTO &amp; TOWING SERVICE</b>						
243	PERO'S AUTO & TOWING SERV	772824	FIRE/VEHICLE MAINTENANCE	06/08/2011	408.45	100-62200-241
Total PERO'S AUTO & TOWING SERVICE:					408.45	
<b>FIRE-RESCUE SUPPLY LLC</b>						
3886	FIRE-RESCUE SUPPLY LLC	3440	CRASH CREW/EQUIPMENT RE	06/06/2011	18.50	100-52210-242
Total FIRE-RESCUE SUPPLY LLC:					18.50	
<b>FORT HEALTHCARE-BUSINESS HEALT</b>						
801	FORT HEALTHCARE-BUSINESS	34577	NEIGHBORHOOD SVC/RANDO	06/08/2011	146.00	100-52400-154
801	FORT HEALTHCARE-BUSINESS	34577	WASTEWATER/DOT DRUG SCR	06/08/2011	57.00	620-62820-154
801	FORT HEALTHCARE-BUSINESS	34577	WASTEWATER/HEARING SCRE	06/08/2011	45.00	620-62820-154
801	FORT HEALTHCARE-BUSINESS	34577	STREET/HEARING SCREENS	06/08/2011	30.00	100-53300-154
801	FORT HEALTHCARE-BUSINESS	34577	NEIGHBORHOOD SVC/HEARIN	06/08/2011	30.00	100-52400-154
Total FORT HEALTHCARE-BUSINESS HEALT:					308.00	
<b>FOSTER COACH SALES INC</b>						
878	FOSTER COACH SALES INC	51431	RESCUE/LATCH	06/08/2011	106.77	100-52300-241
Total FOSTER COACH SALES INC:					106.77	
<b>GRAINGER</b>						
367	GRAINGER	9505647100	WASTEWATER/CREDIT	06/08/2011	223.02	620-62840-340
367	GRAINGER	9537483662	GEN BLDG/BLDG MAINTENANC	06/08/2011	218.90	100-51600-355
367	GRAINGER	9541380953	WASTEWATER/OPERATING SU	06/08/2011	107.49	620-62840-340
Total GRAINGER:					103.37	
<b>GUS PIZZA PALACE LLC</b>						
601	GUS PIZZA PALACE LLC	6066	CRASH CREW/OPERATING SU	06/08/2011	125.13	100-52210-340
Total GUS PIZZA PALACE LLC:					125.13	
<b>HD SUPPLY WATERWORKS LTD</b>						
2459	HD SUPPLY WATERWORKS LT	2821716	WATER/SERVICE MAINTENANC	06/08/2011	1,249.32	310-61652-350
Total HD SUPPLY WATERWORKS LTD:					1,249.32	
<b>ITT WATER &amp; WASTEWATER USA</b>						
5682	ITT WATER & WASTEWATER U	07635209	WASTEWATER/CLAY ST LS PU	06/08/2011	3,691.00	620-62810-822
Total ITT WATER & WASTEWATER USA:					3,691.00	
<b>JAECKEL BROS INC</b>						
493	JAECKEL BROS INC	5930	WATER/STARIN RD	06/08/2011	687.12	610-31651-350
493	JAECKEL BROS INC	6047	WATER/FOREST ST BREAK	06/08/2011	913.80	610-31651-350

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	GL Account Number
Total JAECKEL BROS INC:					1,600.92	
<b>JEFFERSON CURRENT ELECTRIC INC</b>						
251	JEFFERSON CURRENT ELECT	127124	WASTEWATER/INFLUENT SAM	06/08/2011	2,465.00	620-62610-822
Total JEFFERSON CURRENT ELECTRIC INC:					2,465.00	
<b>JOHNSON BLOCK &amp; CO INC</b>						
4256	JOHNSON BLOCK & CO INC	00114558	FINANCE/10 AUDIT	06/08/2011	9,000.00	100-51500-214
4256	JOHNSON BLOCK & CO INC	00114558	WATER/10 AUDIT	06/08/2011	2,500.00	610-61923-210
4256	JOHNSON BLOCK & CO INC	00114558	WASTEWATER/10 AUDIT	06/08/2011	2,500.00	620-62810-218
4256	JOHNSON BLOCK & CO INC	00114558	STORMWATER/10 AUDIT	06/08/2011	1,000.00	630-63300-214
Total JOHNSON BLOCK & CO INC:					15,000.00	
<b>JONAS OFFICE PRODUCTS</b>						
343	JONAS OFFICE PRODUCTS	264321-0	WATER/OFFICE SUPPLIES	06/08/2011	65.98	610-61921-310
Total JONAS OFFICE PRODUCTS:					65.98	
<b>MAILFINANCE INC</b>						
4196	MAILFINANCE INC	H2500019	POLICE ADMIN/MAIL MACHINE	06/08/2011	82.78	100-52100-310
4196	MAILFINANCE INC	H2500019	COUNCIL/MAIL MACHINE	06/08/2011	82.78	100-51100-310
4196	MAILFINANCE INC	H2500019	GEN ADMIN/MAIL MACHINE	06/08/2011	82.78	100-51400-340
4196	MAILFINANCE INC	H2500019	PLANNING/MAIL MACHINE	06/08/2011	82.78	100-56300-310
4196	MAILFINANCE INC	H2500019	COURT/MAIL MACHINE	06/08/2011	27.59	100-51200-340
4196	MAILFINANCE INC	H2500019	FINANCE/MAIL MACHINE	06/08/2011	55.19	100-51500-310
4196	MAILFINANCE INC	H2500019	WATER/MAIL MACHINE	06/08/2011	55.19	610-61921-310
4196	MAILFINANCE INC	H2500019	WASTEWATER/MAIL MACHINE	06/08/2011	55.19	620-62820-310
4196	MAILFINANCE INC	H2500019	CDA/MAIL MACHINE	06/08/2011	27.80	900-56500-311
Total MAILFINANCE INC:					551.88	
<b>MIDWEST PRAIRIES LLC</b>						
3154	MIDWEST PRAIRIES LLC	4945	REC/PRESCRIBED BURNS	06/08/2011	1,065.00	100-55200-219
Total MIDWEST PRAIRIES LLC:					1,065.00	
<b>MIDWEST TESTING LLC</b>						
4788	MIDWEST TESTING LLC	1946	WATER/METER	06/08/2011	560.00	610-61850-350
Total MIDWEST TESTING LLC:					560.00	
<b>MILPORT ENTERPRISES INC</b>						
1408	MILPORT ENTERPRISES INC	208194	WATER/CHEMICALS	06/08/2011	1,523.00	610-61630-341
Total MILPORT ENTERPRISES INC:					1,523.00	
<b>MODULAR PIPING SUPPLY</b>						
311	MODULAR PIPING SUPPLY	INV000171490	WASTEWATER/ALUM PUMP #2	06/08/2011	80.82	620-62860-357
Total MODULAR PIPING SUPPLY:					80.82	
<b>NCL OF WISCONSIN INC</b>						
369	NCL OF WISCONSIN INC	287585	WASTEWATER/LAB SUPPLIES	06/08/2011	277.23	620-62870-340

Vendor	Vendor Name	Invoice Number	Description	Invoice Date	Net Invoice Amount	GL Account Number
WJOA						
2254	WJOA	VALADEZ	POLICE INV/TODAYS KIDS DAN	06/08/2011	130.00	100-52120-154
Total WJOA:					130.00	
Grand Totals:					138,186.07	

Dated: June 2, 2011

Finance Director: 

Report Criteria:

- Detail report.
- Invoices with totals above \$0.00 included.
- Paid and unpaid invoices included.

## RESOLUTION ADOPTING SANITARY SEWER USER & CONNECTION FEES

WHEREAS, the Common Council of the City of Whitewater has reviewed all fiscal year cost breakdowns and budgets for sewer service in accordance with Chapter 16.14 and 16.20 of the Municipal Code; and

WHEREAS, the Common Council determined a need to revise the rates for users of the sewer service to fairly allocate the costs of sewer service and maintain the sewer fund on a sound fiscal basis.

NOW, THEREFORE, BE IT RESOLVED by the Common Council that the following tariffs are hereby established, effective June 25, 2011.

FURTHER MORE, BE IT RESOLVED by the Common Council that the following New Building Connection Fees are hereby established, effective January 1, 2009.

### DOMESTIC SEWAGE CUSTOMERS

<u>Meter Size</u>	<u>Quarterly Facilities Charge:</u>	<u>Monthly Facilities Charge:</u>
5/8"	\$ 27.30	\$ 9.10
3/4"	27.30	9.10
1"	43.49	14.50
1 1/2"	70.46	23.49
2"	102.83	34.28
3"	178.36	59.45
4"	286.26	95.42
6"	556.01	185.34
8"	879.71	293.24
 <u>Volume Charge:</u>	 \$ per 1000 gallons	 \$ 6.25

### NON DOMESTIC SEWAGE CUSTOMERS

<u>Quarterly Facilities Charge:</u>	Same as Domestic Sewage Customers	
<u>Volume Charge:</u>	Same as Domestic Sewage Customers	
Surcharge per lb. Over		
Domestic Strength Sewage:		
B.O.D. (over 300 mg/l)		\$ 0.56 per pound
T.S.S. (over 300 mg/l)		\$ 0.53 per pound
NH3-N (over 30 mg/l)		\$ 0.96 per pound
Total Phosphorus (over 12 mg/l)		\$ 7.35 per pound

### New Buildings Connection Fee:

(a) Per family dwelling or R.F.U.	\$1,824.00
(b) Multiple family dwellings without individual laundry Facilities-per unit or R.E.U.	\$1,368.00

(c) All others:  
\$1,824 per each 275 gallons per  
day of usage (Minimum \$1,824  
per unit or R.E.U.).

Special Wastes:

Holding tank waste	\$17.00 per 1000 gallons
Septic tank waste	\$46.00 per 1000 gallons
Grease	\$63.00 per 1000 gallons

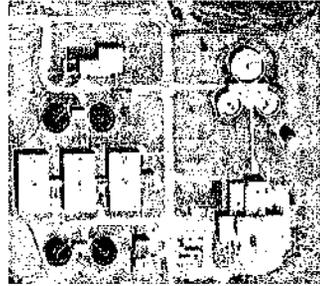
Resolution introduced by Councilmember \_\_\_\_\_, who moved its adoption.  
Seconded by Councilmember \_\_\_\_\_.

AYES:  
NOES:  
ABSENT:  
ADOPTED:

\_\_\_\_\_  
Kevin M. Brunner, City Manager

\_\_\_\_\_  
Michele R. Smith, City Clerk

City of  
**WHITEWATER Wastewater User  
Charge System Update**



**Presentation to  
City Council**

**June 7, 2011  
Jane Carlson – Strand Associates, Inc.**

**Presentation Outline**

- Background
- Current Rates
- Proposed Rates
- Comparison with Other Communities
- Next Steps



**Current Rates Were Adopted in 2009**

- Wastewater Treatment Plant equipment replacement project
  - Clean Water Fund grant and loan – required user charge system update
  - CWF required updated payments to equipment replacement fund
- Began funding an operating reserve (\$50,000/yr)
- Began funding a capital reserve (goal = \$100,000/yr)



**Current Rate Structure (Adopted 2009)**

Meter Size (in.)	2010	2011	2012	2013
3/4	\$22.03	\$22.97	\$23.41	\$24.45
1	\$30.27	\$31.39	\$31.98	\$33.15
1 1/2	\$44.00	\$45.41	\$46.26	\$47.66
2	\$60.48	\$62.24	\$63.40	\$65.07
3	\$98.93	\$101.51	\$103.39	\$105.69
4	\$153.85	\$157.61	\$160.51	\$163.71
Volume Charges (\$ per 1,000 gallons)	\$5.36	\$5.72	\$6.12	\$6.43

Notes: Rates effective Dec. 1 of the preceding year. Meter rates shown are quarterly.



## Proposed Rates for June 2011 Adoption

- Wastewater Treatment Plant anaerobic digester biogas boiler project
  - Clean Water Fund grant and loan – requires user charge system update
  - CWF requires updated payments to equipment replacement fund
- Need to “true-up” rates to generate adequate revenue
- Fully fund the operating reserve (\$50,000/yr)
- Fully fund the capital reserve (\$100,000/yr)



## Boiler Project Updated Budget

<b>Total Project Budget (As of May, 2011)</b>	<b>\$717,920</b>
<b>Planning Grants (Focus on Energy, We Energies)</b>	<b>\$14,500</b>
<b>Focus on Energy Implementation Grant</b>	<b>\$34,250</b>
<b>CWF Principal Forgiveness Grant</b>	<b>\$66,917</b>
<b>Total Project Budget - City's Share</b>	<b>\$602,253</b>



**Other Changes to User Charge System for "True-Up"**

- Equipment replacement fund balance is now adequate; reduced payments to \$50,000/yr
- Revised number of customer meters downward based on updated numbers from billing program
- Used average of 2009 – 2010 sewer sales from updated internal study
- Added automatic meter reading project annual contribution (payment to water utility)
- Added part time utility clerk position
- Reduced benefits starting 2012 as mandated by State



**Current vs. Proposed Rate Structure**

Meter Size (in.)	Current 2011	Current 2012	Current 2013	Proposed 2011-2012
3/4	\$22.97	<del>\$23.41</del>	<del>\$24.45</del>	\$27.30
1	\$31.39	<del>\$31.98</del>	<del>\$33.15</del>	\$43.49
1 1/2	\$45.41	<del>\$46.26</del>	<del>\$47.66</del>	\$70.46
2	\$62.24	<del>\$63.40</del>	<del>\$65.07</del>	\$102.83
3	\$101.51	<del>\$103.39</del>	<del>\$105.69</del>	\$178.36
4	\$157.61	<del>\$160.51</del>	<del>\$163.71</del>	\$286.26
Volume Charges (\$ per 1,000 gallons)	\$5.72	<del>\$6.12</del>	<del>\$6.43</del>	\$6.25

Note: Meter rates shown are quarterly. Proposed rates will supersede the 2012 and 2013 rates shown. Proposed rates are intended to be in effect from July 1, 2011 to June 30, 2012.

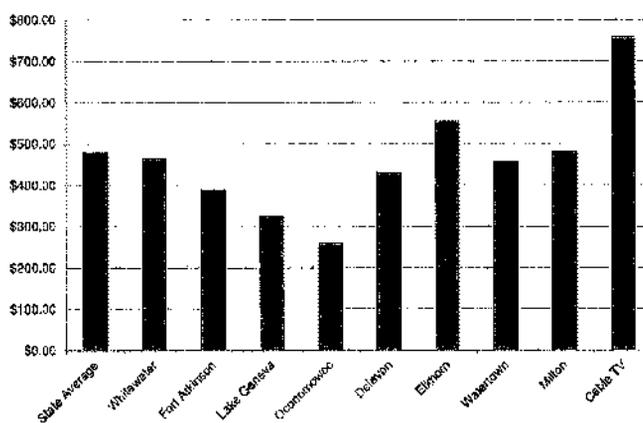


Impact on Typical Residential User  
(Residential – 3/4-inch Meter)

Volume (gallon/year)	Current (2011)			Proposed (2011-2012)			Increase
	Total Annual	Per Quarter	Per Month	Total Annual	Per Quarter	Per Month	
24,000	\$229.20	\$57.30	\$19.10	\$259.20	\$64.80	\$21.60	13.1%
40,000	\$320.68	\$80.17	\$26.72	\$359.21	\$89.80	\$29.93	12.0%
70,000	\$492.24	\$123.06	\$41.02	\$546.72	\$136.68	\$45.56	11.1%



Comparison with Other Communities  
(2010 Sewer User Charges)



Notes: Annual 2010 charges based on 70,000 gallons/yr are shown.  
Sewer and water total was also below the state average.

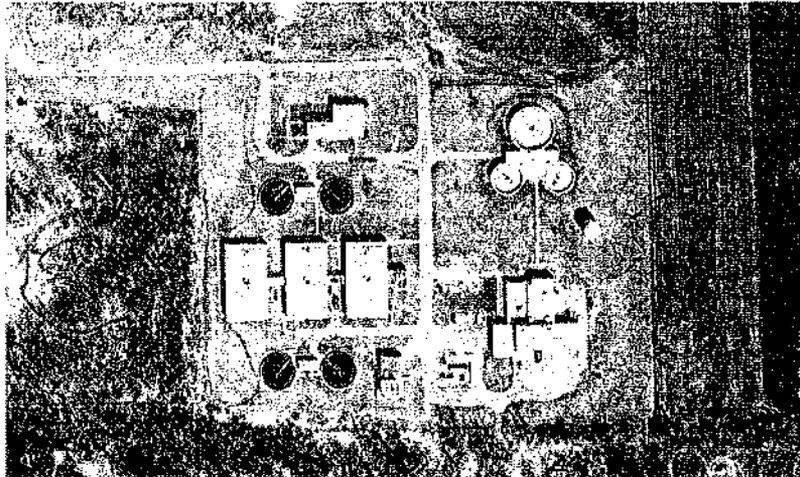


## Next Steps

- Submit user charge system and evidence of adoption to Clean Water Fund (WDNR) by June 15, 2011
- Update rates in 2012 based on:
  - Bond issue for 2012 sewer projects
    - Milwaukee Street
    - Prince Street
  - Biogas boiler use starting mid 2012
    - Additional minor costs and projected revenue from industrial wastes fed to anaerobic digester
    - Projected reductions in natural gas use



## Questions?





## MEMORANDUM

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**TO:** City Manager & Common Council  
**FROM:** Cameron Clapper  
**SUBJECT:** Proposed 2011 Salary Resolution Amendment #1  
**DATE:** 06/07/2011

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Attached is the first amendment to the 2011 Salary Resolution. The following modifications have been made:

1. Schedule II: The position of Assistant Finance Director – City Treasurer under Pay Grade F has been removed.
2. Schedule II: The position of Finance Support Services Supervisor has been added under Pay Grade D.

**CITY OF WHITEWATER  
2011 SALARY RESOLUTION  
AMENDMENT #1**

**WHEREAS**, the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, sets forth the wage and salary schedule for employees for 2011, in which wages are established.

**NOW THEREFORE, BE IT RESOLVED** by the Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, that the following ranges and numbers of employees in the 2011 Wage and Salary Schedule are hereby adopted pursuant to Wisconsin Statutes; and

**BE IT FURTHER RESOLVED** that the contents of this resolution shall supersede such previously adopted schedules where the subject matter between the two shall be in conflict, and the changes contained herein shall be effective beginning June 7, 2011.

**SCHEDULE I  
ADMINISTRATIVE POSITIONS**

Position	# of Positions	Effective	Salary
City Manager	1	12/31/2010	98,176.10
		07/01/2011	100,630.51
Chief of Police	1	12/31/2010	88,975.56
		07/01/2011	91,199.95
Municipal Judge	1	05/01/2010	19,099.28
		05/01/2011	19,576.76
City Attorney	1	12/31/2010	51,250.00
		07/01/2011	52,531.25

**SCHEDULE II  
PROFESSIONAL AND TECHNICAL EMPLOYEE PAY PLAN**

Pay Grade	# of Positions	Classification Titles	Pay Grade	# of Positions	Classification Titles
A*	3/4	Senior Coordinator (Part-time)	F	1	City Clerk
	2	Administrative Assistant II - Records Technician	G		
	2	Administrative Assistant II - General Admin	H		
	0	Administrative Assistant II - Utilities (Part-time)	I	1	Assistant to City Manager
B*	1	Accounting Technician II - Payroll & Accounts Payable	J	1	Chief Information Officer
	1	Accounting Technician II - Utilities		1	Water Superintendent
	1	Administrative Assistant I - Neighborhood Services		1	Streets, Parks & Forestry Superintendent
	1	Clerk of Courts		1	Neighborhood Services Director
C			1	Parks & Recreation Director	
D	1	Finance Support Services Supervisor	K	1	Wastewater Treatment Plant Superintendent
	1	Support Services Manager		1	Lieutenant - Administrative Services
E	1	Community TV/Media Services Manager	L	1	Lieutenant - Field Services
	1	CDA Coordinator		1	Finance Director
	1	Recreation & Community Events Programmer		1	Public Works Director

\*Non-Exempt Positions

**SCHEDULE II  
PROFESSIONAL AND TECHNICAL EMPLOYEE PAY PLAN**

Pay Grade		1	2	3	4	5
A*	Hourly Wage 2080 Hours	14.93 31,053.11	15.39 32,014.65	16.05 33,391.38	16.73 34,789.98	17.39 36,166.72
B*	Hourly Wage 2080 Hours	16.00 33,282.12	16.73 34,789.98	17.45 36,297.83	18.18 37,805.69	18.90 39,313.55
C	Salary effective 07/01/2011	35,278.60 36,160.57	36,881.42 37,803.46	38,484.47 39,446.58	40,088.95 41,091.17	41,692.00 42,734.30
D	Salary effective 07/01/2011	38,099.25 39,051.73	39,831.59 40,827.38	41,561.50 42,600.54	43,293.59 44,375.93	45,027.39 46,153.07
E	Salary effective 07/01/2011	41,813.80 42,859.15	43,714.03 44,806.88	45,613.99 46,754.34	47,515.41 48,703.30	49,416.57 50,651.99
F	Salary effective 07/01/2011	45,082.13 46,209.18	47,131.16 48,309.44	49,179.23 50,408.71	51,229.72 52,510.46	53,277.55 54,609.49
G	Salary effective 07/01/2011	48,350.21 49,558.97	50,548.56 51,812.27	52,745.69 54,064.33	54,941.37 56,314.90	57,139.71 58,568.21
H	Salary effective 07/01/2011	51,618.53 52,908.99	53,963.53 55,312.62	56,310.94 57,718.71	58,654.49 60,120.85	61,003.34 62,528.42
I	Salary effective 07/01/2011	54,885.66 56,257.80	57,380.92 58,815.44	59,874.74 61,371.61	62,369.04 63,928.27	64,864.30 66,485.91
J	Salary effective 07/01/2011	58,152.54 59,606.35	60,795.66 62,315.55	63,440.23 65,026.23	66,082.15 67,734.20	68,726.48 70,444.64
K	Salary effective 07/01/2011	61,422.07 62,957.62	64,213.04 65,818.36	67,005.48 68,680.61	69,795.25 71,540.13	72,587.67 74,402.36
L	Salary effective 07/01/2011	64,689.19 66,306.42	67,629.23 69,319.96	70,570.72 72,334.99	73,509.80 75,347.55	76,452.26 78,363.57

\*Non-Exempt Positions

**SCHEDULE III  
LIBRARY POSITIONS**

Pay Grade	# of Positions	Classification Titles	Step				
			1	2	3	4	5
A1	3	Library Aide*	11.91	12.44	13.00	13.00	13.00
A2	5	Library Assistants*	12.94	13.53	14.13	14.71	15.30
A3	3	Library Technical Assistants*	14.71	15.39	16.05	16.73	17.39
	3	Library Associates*					
A4	1	Youth Service Librarian	35,278.60	36,881.65	38,484.47	40,088.95	41,692.00
		effective 07/01/2011	36,160.57	37,803.70	39,446.58	41,091.17	42,734.30
A5	1	Assistant Library Director	45,082.13	47,131.16	49,179.23	51,225.08	53,277.55
		effective 07/01/2011	46,209.18	48,309.44	50,408.71	52,505.71	54,609.49
A6	1	Library Director	58,152.54	60,795.66	63,440.23	66,082.15	68,726.48
		effective 07/01/2011	59,606.35	62,315.55	65,026.23	67,734.20	70,444.64

\*Non-Exempt Positions

**SCHEDULE IV  
WHITEWATER POLICE DISPATCH UNION**

Position	# of Positions	Effective Date	Step			
			1	2	3	4
Records Communications Coordinator	1	01/01/2011	18.64	19.63	20.65	20.89
<i>Per 2,080 Hours</i>			38,781.29	40,826.95	42,958.73	43,454.00
Dispatch / Records Communications Aide	7	01/01/2011	16.77	17.64	18.57	18.76
<i>6 @ Per 1947 Hours</i>			32,653.23	34,346.37	36,160.43	36,523.25
<i>1 @ Per 976 Hours</i>			16,368.54	17,217.28	18,126.65	18,308.52
Parking/Community Support	1	01/01/2011	15.22	16.03	16.87	17.04
<i>Per 1872 Hours</i>			28,488.42	30,000.05	31,589.20	31,899.28

## SCHEDULE V AFSCME UNION

Pay Grade	Classification Title	Step					
		1 0-11 mos.	2 12-23 mos.	3 24-35 mos.	4 36-47 mos.	5 48-59 mos.	6 60+ mos.
A	Chemist Assistant	12.58	13.20	13.82	13.82	13.82	13.82
B	Custodian/Groundskeeper <i>Per 2,080 Hours</i>	14.96 31,118.67	15.53 32,298.73	16.10 33,478.80	16.64 34,615.15	17.20 35,773.36	17.76 36,931.57
C	Laborer II <i>Per 2,080 Hours</i>	17.48 36,363.39	18.05 37,543.45	18.61 38,701.66	19.16 39,859.87	19.73 41,039.93	20.28 42,176.29
D	Building Maintenance <i>Per 2,080 Hours</i>	19.57 40,712.14	20.14 41,892.20	20.68 43,006.70	21.26 44,230.47	21.81 45,366.83	22.38 46,546.89
E	Engineering Technician Laborer I Laborer I - Mechanic Code Enforcement/Building Maintenance Water Operator - no certification (1) Wastewater Operator - no certification (1) Wastewater Operator - Lab Technician no certification (1) <i>Per 2,080 Hours</i>	21.90 45,541.65	22.39 46,568.74	22.87 47,573.98	23.37 48,601.07	23.85 49,606.31	24.35 50,655.25

(1) Additional twenty cents (\$.20) per hour upon completion and receipt of Grade I certification and one (1) subgrade

**Grade F:** Successful completion of Grade II and all Grade II subgrades required by Wisconsin Administrative Code for the City of Whitewater Wastewater Utility.

Wastewater Operator      \$25.12    52,250.52

**Grade G:** Successful completion of Grade IV and all Grade IV subgrades required by Wisconsin Administrative Code for the City of Whitewater Wastewater Utility.

Wastewater Operator      \$25.38    52,796.85

**SCHEDULE VI  
WHITEWATER PROFESSIONAL POLICE ASSOCIATION UNION**

Position	# of Positions	Effective Date	Hourly Wage	Per 2,080 Hours *Patrol (2,008 Hours)
Sergeant*	4	01/01/2011	30.10	60,460.88
Detective Sergeant	1	01/01/2011	30.10	62,608.80
Detective	2	01/01/2011	28.78	59,862.40
Juvenile Officer	1	01/01/2011	28.78	59,862.40
Patrol Officer I*	13	01/01/2011	27.54	55,300.32
Patrol Officer II*		01/01/2011	24.96	50,119.68
Patrol Officer III*		01/01/2011	23.54	47,268.32

**SCHEDULE VII  
FIRE-RESCUE**

Position	# of Positions (Part-time)	Wage
Fire-Inspector	6	\$11.00 per hour
Volunteer Fire	48	\$8.00 per call
Rescue Squad Captain	1	\$10.00 per call
Rescue Squad Lieutenant	4	\$9.00 per call
Rescue Squad Maintenance	1	\$100.00 per month
EMT Driver		\$16.00 per hour
EMT Basic		\$17.50 per hour
EMT Intermediate		\$20.00 per hour
EMT On-Call Pay		\$2.00 per hour
Fire Chief	1	\$15.00 per call
1st Asst. Fire Chief	1	\$13.00 per call
2nd Asst. Fire Chief	1	\$11.00 per call
Fire Vehicle Maintenance	5	\$50.00 per month

**SCHEDULE VIII  
PART-TIME EMPLOYEES**

Position	# of Positions	Effective Date	Hourly Wage
Community Service Officer	1	01/01/2009	\$10.54
Neighborhood Services Officer	1	01/01/2009	\$10.54

**SCHEDULE IX  
PART-TIME SEASONAL EMPLOYEES**

Position	Step				
	1	2	3	4	5
Election Officials	8.00	8.00	8.00	8.00	8.00
Crossing Guards	10.96	10.96	10.96	10.96	10.96
Cable TV Camera Operator	7.25	7.50	8.00	8.75	9.75
Adult Sport Officials	10.00	11.00	12.00	13.00	15.00
Activity Leaders	9.25	9.50	10.00	10.50	11.50
Program Attendants	7.25	7.50	7.75	8.00	8.25
Certified Instructors	10.00	11.00	12.00	13.00	15.00
Activity Instructors	7.75	8.00	8.25	8.50	8.75
Youth Sport Officials	20.00	21.00	22.00	24.00	25.00
Seasonal Labor	7.25	7.50	8.00	8.75	9.75

Resolution introduced by Councilmember \_\_\_\_\_, who moved its adoption. Seconded by Councilmember \_\_\_\_\_.

- AYES:
- NOES:
- ABSENT:
- ADOPTED:

\_\_\_\_\_  
Kevin M. Brunner, City Manager

\_\_\_\_\_  
Michele R. Smith, City Clerk

Interim Chief Otterbacher  
Whitewater Police Department

Date: June 1, 2011  
To: City Manager Kevin Brunner, Whitewater City Council  
From: Lisa Otterbacher  
Cc:  
Re: Synthetic Cannabinoid

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In light of the increased awareness and risk of synthetic cannabinoid, the police department is seeking for the city council to pass an ordinance that would make the sale, possession and / or use of synthetic cannabinoid illegal in the City of Whitewater.

Synthetic cannabinoid is an herbal product that is traditionally packaged and sold as incense (photo noted below). The product appearance is similar to potpourri or crushed dried oregano. Some of these products are labeled "not for human consumption." The product tends to be marketed toward teenagers and young adults who are seeking to experience a "high" effect, without having to seeking out illegal drugs such as marijuana, which provide a similar feeling.

Contrary to the risks, the substance is often inhaled / smoked. The ingesting of synthetic cannabinoid can cause agitation, anxiety, vomiting, abnormally rapid heartbeat, elevated blood pressure, tremor, seizures, hallucinations and non-responsiveness. Other risks reported by clinicians include psychotic episodes, withdrawals, depression and product dependency.

Currently several surrounding jurisdictions, to include Janesville, Fort Atkinson, Jefferson and Watertown, have enacted an ordinance against the sale, possession and use of synthetic cannabinoid. One (known) local business currently sells "Purple Magic," which is an updated version of Spice.



(06-02-11 @ noon. Draft)

ORDINANCE NO. \_\_\_\_\_

**AN ORDINANCE CREATING CHAPTER 7.27  
POSSESSION, SALE AND USE OF SYNTHETIC  
CANNABINOID SUBSTANCES PROHIBITED**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do hereby ordain as follows:

**SECTION I.** Whitewater Municipal Code Chapter 7.27 is hereby created to read as follows:

Chapter 7.27

Possession, Sale, and Use of Synthetic Cannabinoid Substances Prohibited

Sections:

- 7.27.010 Introduction, Purpose and Findings
- 7.27.020 Definitions
- 7.27.030 Synthetic Chemical Cannabinoid Possession,  
Use and Sale Prohibited
- 7.27.040 Exceptions
- 7.27.050 Penalties

7.27.010 Introduction, Purpose and Findings.

A. The Common Council of the City of Whitewater has determined that herbal preparations powdered or sprayed with a synthetic chemical cannabinoid are available for sale within the City of Whitewater that claim to produce intoxicating effects similar to THC or marijuana; and

B. Synthetic cannabinoid substances are often marketed as incense or benign and legal alternatives to marijuana; and

C. Cannabinoid substances are potentially dangerous to users and have been reported to produce severe adverse health conditions such as heart palpitations, hallucinations, paranoia, seizures, panic attacks, increased agitation, vomiting;

D. Some states have already included one or more of these synthetic cannabinoid substances on their schedule of controlled substances, but none of the chemicals are currently listed on the State of Wisconsin's schedule of controlled substances;

E. Many municipalities have taken action to prohibit these substances due to the negative health conditions that may be caused by using these substances; and

F. Although the long term health effects of using synthetic cannabinoid substances are not yet known, the Common Council of the City of Whitewater has determined to address the growing threat of synthetic cannabinoids to the health, safety and welfare of its citizens.

7.27.020 Definitions.

A. "Deliver" has the same meaning given in Section 961.01(6) Wis. Stats. with respect to a controlled substance or controlled substance analog.

B. "Distribute" has the same meaning given in Section 961.01(9) Wis. Stats. with respect to a controlled substance or controlled substance analog.

7.27.030 Synthetic Chemical Cannabinoid Possession, Use and Sale Prohibited.

A. It shall be illegal for any person to possess, sell, publicly display for sale or attempt to sell, give, deliver, distribute, or barter any one or more of the following chemicals whether under the common street or trade names of "Spice", "K2", "Genie", "Yucatan Fire", "Blaze", "Red X Dawn", "Zohia", Spike Diamond", "Route 69", "Smoke XXXX", "Citron", "fake", or "new" marijuana, or by any other name, label or description:

1. (6aR, 1 OaR)-9-(hydroxymethyl)-6, 6dimethyl-3-(2methyloctan-2-yl)-6a, 7, 10, 10a-tetrahydrobenzo[c]chromen-1-ol- some trade or other names: HU-210;
2. 1-Pentyl-3-(1-naphthoyl) indole - some trade or other names: JWH-018\spice
3. 1-Butyl-3-(1naphthoyl) indole - some trade or other names: JWH-073;
4. 1-(3 {trifluoromethylphenyl}) piperazine - some trade or other names: TFMPP;
5. 2-(3-hydroxycyclohexyl)-5-(2-methyloctan-2-yl)phenol- some trade or other names:  
CP 47, 497;
6. 1-(2-( 4-(morpholinyl)ethyl))-3-(1-naphthoyl) indole - some trade or other names: JWH-200;
7. 1-hexyl-3-(1-naphthoyl)indole - some trade or other names: JWH-019;
8. 1-pentyl-3-(2-methoxyphenylacetyl)indole - some trade or other names:  
JWH-250;
9. 1-pentyl-3-( 4-chloro-1-naphthoyl)indole - some trade or other names:

JWH-398;

- 10. (2-methyl-1-propyl-1H-indol-3-yl)-1-naphthalenyl-methanone - or some trade or other names: JWH -015;
- 11. Dexanabinol, (6aS, 1 OaS)-9-(hydroxymethyl)-6,6-dimethyl-3-(2-methyloctan-2-yl)-6a,7,10,10a-tetrahydrobenzo[c]chromen-1-ol- or some trade or other names: HU-211;
- 12. or any similar structural analogs.

7.27.040 Exception.

The prohibitions set forth herein do not apply to any person who commits an act described in this ordinance pursuant to the direction or prescription of a licensed physician or dentist authorized to direct or prescribe such act.

7.27.050 Penalties.

A. Any person who shall sell, publicly display for sale or attempt to sell, give, deliver, distribute, or barter any one or more of the chemicals as prohibited in Section 7.27.030 above shall upon conviction be subject to a forfeiture of not less than five hundred dollars (\$500.00) and not more than nine hundred dollars (\$900.00) together with the cost of prosecution, including but not limited to the testing of a substance or a person, experts, witness fees and reports, etc. for each violation. Each day a violation continues shall constitute a separate offense. The City may also seek equitable relief to gain compliance.

B. Any person who shall possess any one or more of the chemicals as prohibited in Section 7.27.030 above shall upon conviction be subject to a forfeiture of not less than three hundred (\$300.00) and not more than seven hundred dollars (\$700.00) together with the cost of prosecution, including but not limited to the testing of a substance or a person, experts, witness fees and reports, etc. for each violation.

Ordinance introduced by Councilmember \_\_\_\_\_, who moved its adoption. Seconded by Councilmember \_\_\_\_\_.

AYES:

\_\_\_\_\_  
Kevin Brunner, City Manager

NOES:

ABSENT:

\_\_\_\_\_  
Michele R. Smith, City Clerk

ADOPTED:

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE AMENDING SECTION 1.21.010  
SCHEDULE OF DEPOSITS

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do hereby ordain as follows:

SECTION I. Whitewater Municipal Code Section 1.21.010 is hereby amended by adding the following:

<u>CHAPTER OR SECTION NUMBER</u>	<u>OFFENSE</u>	<u>DEPOSITS AND COSTS</u>
7.27.030 A.	Violation of synthetic cannabinoid ordinance - sale or delivery	1 <sup>st</sup> offense - \$700 plus statutory penalty assessment, jail assessment, court costs and crime lab assessment  2 <sup>nd</sup> offense or more - \$800, plus statutory penalty assessment, jail assessment, court costs and crime lab assessment
7.27.030 B.	Violation of synthetic cannabinoid ordinance - possession or use	1 <sup>st</sup> offense - \$400 plus statutory penalty assessment, jail assessment, court costs and crime lab assessment  2 <sup>nd</sup> offense or more - \$500, plus statutory penalty assessment, jail assessment, court costs and crime lab assessment

Ordinance introduced by Councilmember \_\_\_\_\_, who moved its adoption. Seconded by Councilmember \_\_\_\_\_.

AYES:

\_\_\_\_\_  
Kevin Brunner, City Manager

NOES:

ABSENT:

\_\_\_\_\_  
Michele R. Smith, City Clerk

ADOPTED:

**ORDINANCE NO. \_\_\_\_\_  
ORDINANCE AMENDING SECTION 11.54.010  
NO TRUCK TRAFFIC**

The Common Council of the City of Whitewater, Walworth and Jefferson Counties, Wisconsin, do hereby ordain as follows:

SECTION 1. Whitewater Municipal Code Section 11.54.010, No Truck Traffic, is hereby amended to read as follows:

**11.54.010 No truck traffic.**

No truck (vehicles in excess of 8,000 pounds gross vehicle weight) traffic shall be allowed on City streets, other than those listed below, except for the purpose of delivery or picking up of material, supplies or commodities and other necessary things to and from any one place or residence fronting on the streets.

Truck traffic is allowed on the following streets:

HIGHWAY 59

TRATT STREET and HIGHWAY N from the northern City limits to MAIN STREET

MAIN STREET from its intersection with Tratt Street west to the City limits.

Ordinance introduced by Councilmember \_\_\_\_\_, who moved its adoption.  
Seconded by Councilmember \_\_\_\_\_.

AYES:  
NOES:

\_\_\_\_\_  
Kevin Brunner, City Manager

ABSENT:

ADOPTED:

\_\_\_\_\_  
Michele R. Smith, City Clerk

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WHITEWATER POLICE DEPARTMENT  
INTEROFFICE MEMORANDUM

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TO: Michelle Smith, City Clerk  
 FROM: Lisa Otterbacher, Interim Chief of Police  
 SUBJECT: Alcohol Beverage License Renewal Applications – 2011-2012  
 DATE: June 2, 2011

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Effective June 2, 2011 the following information is being supplied on an official basis concerning the license applications of those businesses listed below. Only that information which would bear upon this application is recorded. Traffic Violations are excluded.

Pertinent records of the appropriate local and state agencies have been searched as of this date and no information was disclosed that would hinder the issuance of the requested license.

<u>BUSINESS NAME</u>	<u>OWNER/AGENT</u>
Acorn Beverage	Richard Hartmann
Beer Here	John A Cordio
Campus Quick Shop	Jason Michael McArdle
Capn's of Whitewater	Randall R Schopen
College Pub	Kirk Rasmussen
Cozamel Mexican Restaurant	Jose J Lopez
Denny K's Bar & Grill	Dennis M Knopp
Eastsider Citgo	Michael Frawley
Fat Jack's of Whitewater	Mark T Wokasch
Five Points BP	Craig A. Pope
Gus' Pizza Palace	George C Christon
Hawk Bowl	Michael S Kachel
Karina's Mexican Restaurant	Clara Rocha
La Preferida	Luis Islas Martinez
Raceway Food Mart	Pankaj Kaira
Randy's Fun Hunters Brewery	Kristina L Cruse
Randy's Supper Club	Kristina L Cruse
Rick's Eastside Pub	Richard Hartmann
Rocky Rococo	Kenneth L. Dahnert
San Jose Mexican Store	Jose J Barajas
Sentry Foods	Dennis A Riley
Split Decision	Michael S Kachel
Station 1	Patrick L Wellnitz
Sugar Bay Greenhouse Coffee Co	Victoria M Fiedler
The Station	Amar Nath
The Sweet Spot Coffee Shoppe	Lacey M Reichwald
Tokyo Restaurant	En Zheng
Walgreens	Kathy Schultz
Wal-Mart	Joseph Marx
Westsider Liquor	Michael J Frawley
Whitewater Street Restaurant	Christ G Christon

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WHITEWATER POLICE DEPARTMENT  
INTEROFFICE MEMORANDUM

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TO: Michelle Smith, City Clerk  
FROM: Lisa Otterbacher, Interim Chief of Police  
SUBJECT: 2011 - 2012 Alcohol Beverage License Renewals - Violations  
DATE: June 2, 2011

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Effective June 2, 2011, the following information is being supplied on an official basis concerning the license applications listed on the attached sheets. Only that information which would bear upon this application is recorded.

Pertinent records of the local and state agencies have been searched as of this date with the results listed on the attached pages.

Qualifications for license in accordance with Wisconsin State Statute 125.04(5)(a) as affected by Chapter 79 and 391, Laws of '81 effective 1/1/82 which states in part: "Natural persons. Licenses and permits related to alcohol beverages, issued to natural persons under this chapter, may be issued only to persons who: 1. Do not have an arrest or conviction record, subject to s. 111.321, 111.322, and 111.335: . . ." Statute 111.335--Arrest or conviction record: Exceptions and special cases--reads in part: "(e) Notwithstanding s.111.322 it is not employment discrimination because of conviction record to refuse to employ or license, or to terminate from employment or licensing any individual who: 1. Has been convicted of any felony, misdemeanor or other offense the circumstances of which substantially relate to the circumstances of the particular job or licensed activity; or . . ."

The licensees on the attached sheet have arrests, violations and/or convictions which substantially relate to the requested alcohol license. Please note that the department is not recommending denial of any of these licenses. This information is provided to give the council information that it may want to consider in making its decision. The City Attorney's office has advised us that there must be a formal hearing held before the alcohol licensing committee prior to the denial of any license renewal.

**Tavern Violation continued**

**BRASS RAIL: David L. Bergman**

Previous Violations:

10/01/08 LRAE - Closing Hours Violation

**COYOTE GRILL: Dennis G Salverson**

Previous Violation:

10/16/08 LRAE - Furnish Alcohol to Underage Persons

**DOWNSTAIR'S SPORTS BAR & GRILL**

09/19/10 LRAE - Underage Person on Premises

08/25/10 LRAE - Furnish Alcohol to Underage Persons

**HAWKS NEST**

11/05/08 Disorderly Conduct - Fighting

**MAD BOAR PUB: Nicolas A Marietta**

Previous Violations:

04/16/09 LRAE - Furnish Alcohol to Underage Persons

10/18/08 LRAE - Allow Underage Person to Consume Alcohol

**MITCHELL'S / PUMPING STATION: Gregory A Condos**

Previous Violations:

10/27/09 LRAE - Furnish Alcohol to Underage Persons

04/30/10 LRAE - Furnish Alcohol to Underage Persons

**PIZZA HUT**

09/19/10 Disorderly Conduct - Objectionable Conduct

LRAE = Licensee Responsible for Acts of Employees

PLEASE NOTE: Violations prior to 06/01/2008 have not been listed.

LKO/cas

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
Campus Quick Shop	Campus Quick Shop Inc. Jason McArdle	Class A Beer	N/A	N/A	No record	24 hours - 7 days a week	Retail Food Establishment License Exp. 06/30/11
Eastsider	Frawley Oil Co., Inc John Frawley Michael Frawley Betty Frawley	Class A Beer	N/A	N/A	No record	24 hours - 7 days a week	N/A
Five Points BP	C.A. Pope, Inc. C.A. Pope M.E. Pope	Class A Beer	N/A	N/A	No record	M-F 5:30 a.m. - midnight Sat. - 6 a.m. - midnight Sun. - 7 a.m. - midnight	N/A
Raceway Food Mart	Wish Enterprises, LLC Pankaj Kalra, Agt.	Class A Beer	N/A	N/A	No record	Mon - Fri 6 a.m. - 11 p.m. Sat. - Sun 7 a.m. - 10:30 p.m.	N/A
The Station	SBL Petro, Inc. Amar Nath, Agent	Class A Beer	N/A	N/A	No record	M-F 6 a.m. - 10 p.m. 7 days a week	N/A
Walgreens	Kathy Schultz, agent	Class A Beer	N/A	N/A	No record	7 days a week - 8 a.m. - 10 p.m.	Retail Food Establishment License Exp. 06/30/11
Acorn Beverages	Hartmann's Acorn Beverages, Inc. Richard Hartmann	Class A Beer & Liq.	N/A	N/A	No record	7 days a week - 8 a.m. - 9 p.m.	N/A
Sentry Foods	Daniels of Whitewater, LLC Terry Daniels Dennis Riley, Agent	Class A Beer & Liq.	N/A	N/A	No record	7 days a week - 6 a.m. - 11 p.m.	Retail Food Establishment License Exp. 06/30/11
Wal-Mart	Joseph Marx, Agent	Class A Beer & Liq.	N/A	N/A	No record	7 days a week - 7 a.m. - 11 p.m.	N/A
Westsider Liquor	Frawley Oil Co., Inc John Frawley Michael Frawley Betty Frawley	Class A Beer & Liq.	N/A	N/A	No record	7 days a week - 8 a.m. - 9 p.m.	N/A

XG1

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
The Sweet Spot Coffee Shop	LLP, LLC Lacey Reichwald	Class a Beer and Class C Wine	Ok	Ok	No record	Mon - Fri 6 a.m - 4 p.m. Sat - Sun. 7 a.m. - 4 p.m.	Retail Food Establishment License Exp. 06/30/11
Gus' Pizza Palace	George Christon	Class B Beer	1) Hang gate by dumpster 2) Provide grease trap cleaning dates / paperwork 3) Post "48" occupancy	Ok	No record	Mon - Sat. 4:30 p.m. - 12 a.m. Sun - 4:30 p.m. - 11 p.m.	Need to receive from owner
LaPreferida	Luis Martinez Islas	Class B Beer	1) Remove all extension cords in back kitchen	Ok	No record	M - Sat. - 9 a.m. - 8 p.m. Sun. - 9 a.m. - 5 p.m.	Retail Food Establishment License Exp. 06/30/11
Pizza Hut	P H Green Bay, LLC Agent - Andy Pizur	Class B Beer	Ok	Ok	09/19/10 - Disorderly conduct - objectionable conduct	Sun - Wed 11 a.m. - 1 a.m. Thur. - Sat 11 a.m. - 3 a.m.	Restaurant License exp. 6/30/11
Rocky Rococo's	TRH Whitewater Restaurant Inc. Kenneth Dahnert	Class B Beer	Ok	Ok	No record	Sun - Thur - 11 a.m. - 10 p.m. Fri - Sat 11 a.m. - 10:30 p.m.	Foodservice Est. Inspection Report 03/24/11
San Jose Mexican Store	Jose J. Barajas	Class B Beer	Ok	Ok	No record	Mon - Sun 9 a.m. - 9 p.m.	Retail Food Establishment License Exp. 06/30/11
Beer Here	Cordio Inc. John Cordio Michelle Cordio	Class B Beer & Liq.	Ok	Address needs to be easily visible from street, CO alarm	No record	8 a.m. - 2 a.m. M - Th & Sun. 8 am. - 2:30 a.m. F - Sat.	Restaurant License exp. 6/30/11
Brass Rail	R & B Brass Rail Corp. David Bergman Dale Pellmann	Class B Beer & Liq.	Ok	Ok	10/01/08 - Closing hours violation	Mon - Sun 11 a.m. to bar time	Foodservice Est. Inspection Report 05/04/11
Capn's of Whitewater	Capn's of Whitewater LLC Randy Schopen	Class B Beer & Liq.	Ok		No record	Fri. - 2 p.m. - close (as they are booked) All other times with events	Restaurant License exp. 6/30/11

RC-1

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
College Pub	College Pub, LLC Kirk Rasmussen, Agent	Class B Beer & Liq.	Ok	Ok - Talked to Kurt to confirm apt. for exting. Maint.	No record	M - Sat. 8 p.m. - bar time	N/A
Coyote Grill	Coyote Grill, L.L.C. Dennis Salverson	Class B Beer & Liq.	Ok	Ok	10/16/08 - Furnish alcohol to underage persons	Sun - 12 p.m. - close (bar time) Mon. - Th - 11 a.m. - 2 a.m. Fri - Sat 11 a.m. to 2:30 a.m.	Restaurant License exp. 6/30/11
Cozumel	Lopez, Ramon Lopez, Miguel	Class B Beer & Liq.	1) Provide copy of grease trap cleaning dates 2) Fix womens toilet flusher	Portable ext. by kitchen, emergency exit need recharging, some emergency lighting needs bulbs replaced	No record	Mon. - Sat. - 11 a.m. - 10 p.m. Sun. - 11 a.m. - 9 p.m.	Restaurant License exp. 6/30/11
Denny K's	Dennis Knopp	Class B Beer & Liq.	Ok	Ok	No record	Mon. - Sun 10 a.m. bar time (2 - 2:30 a.m.)	Foodservice Est. Inspection Report 03/30/11
Downstairs Sports Bar & Grill	Robert Sweet	Class B Beer & Liq.	1) Paint outside of building trim and upper area 2) Correct back exit 3) Repair garage	Cover for electrical box, emergency lights in back hallway needs attention	09/19/10 - Underage person on premises 08/25/10 - Furnish alcohol to underage persons	Tues. and Thurs. - 4 p.m. - 2 a.m. Wed - 8 p.m. - 2 a.m. Fri - Sat. 8 p.m. - 2:30 a.m.	Restaurant License exp. 6/30/11
Fat Jack's Roadhouse	WMED, LLC Mark T. Wokasch	Class B Beer & Liq.	Ok	Ok	No record	Mon - Sun. 11 a.m. bartime	Restaurant License exp. 6/30/11

\*C-1

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
Hawk Bowl	DLK Enterprises, Inc. Lolita Kachel Michael Kachel	Class B Beer & Liq.	Ok	Extinguishers need service testing by licensed company	No record	June - Aug. 15th - Fri - Sat. 5 p.m. - midnight Aug. 16th - May 29th Sun - noon - 6p.m. Monday - closed Tues - 5 - midnight W-F - 5 - midnight Sat. - noon to midnight	Restaurant License exp. 6/30/11
Hawks Nest Bar & Grill	214 W. Whitewater St., LLC Dan Caravetti Ryan Johnson	Class B Beer & Liq.	1) Remove extension cords 2) Post capacity sign (100 max.) bathrooms 80 max.	Many cooking violations. Business owner has not cooked for years and has no plans to cook or sell food. Long list..... see attached	11/5/08 - Disorderly conduct - fighting	Summer hours - Tues. - Sat. 9 p.m. - 2 a.m. School year - 3 p.m. - 2 a.m. 7 days a week	N/A
Karina's Mexican Restaurant	Clara F. Rocha	Class B Beer & Liq.	Ok	Ok		Mon - Sat. 11 a.m - 9 p.m Sun - 11 a.m. - 8 p.m.	Restaurant License exp. 6/30/11
Mad Boar Pub	Mad Boar Pub LLC Nicolas A. Marietta	Class B Beer & Liq.	1) Remove dead bolt from west center street door	Ok - request letter before inspection	04/16/09 - Furnish alcohol to underage persons 10/18/08 - Allow underage person to consume alcohol	M - W 7 p.m. - 2 a.m. F - Sat - 11 a.m. - 2:30 a.m. Th - 11 a.m - 2 a.m. Sun 12 p.m. - 2 a.m.	Still need to receive from owner

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
Mitchell's/Pumper	GAC Enterprises LLC Robyn L. Hantropp Greg Condos	Class B Beer & Liq.	1) Remove dead bolt from north west exit door	Ok - Remeasured for new capacity	10/27/09 - Furnish alcohol to underage person 04/30/10 - Furnish alcohol to underage persons	M - Sun 9 p.m - bartime (except special days - St. Pat's Day, Homecoming 6 a.m. - noon)	N/A
Randy's Supper Club	Fun Hunters, L.L.C. Kristina Cruse	Class B Beer & Liq.	1) Keep all exits clear at all times 2) Keep all electrical panel accessible	Ok - supper club, banquet hall and Fun Hunters	No record	Tues - Thur - 11 a.m. - 2 a.m. Fri - Sat - 11 a.m. - 2:30 a.m. Sun 10:30 a.m. - 2 a.m.	Restaurant License exp. 6/30/11
Ricks Eastside Pub and Grill	Richard Hartmann	Class B Beer & Liq.	Ok	Ok	No record	Mon - thur 11 a.m. - midnight Fri - Sat 11 a.m. - 2:30 a.m. Sun 10 a.m. - 10 p.m.	Foodservice Est. Inspection Report 03/28/11
Split Decision	DLK Enterprises, Inc. David Kachel Lolita Kachel Michael Kachel	Class B Beer & Liq.	Ok	Ok	No record	Wed, Thur. Sat. 6 p.m. - 1 a.m. during months of Sept, Oct, Nov. Dec, Jan. 15th - May 15th, Aug 15th - Aug. 31st and banquets as requested during times not listed	N/A

\*C-1

2011-2012 Alcohol License Renewal Request

BUSINESS	AGENT	TYPE LICENSE APPLIED FOR	CODE ENFORCEMENT / INSPECTION RESULTS	FIRE INSPECTION RESULTS	POLICE / AGENT BACKGROUND CHECK (violations occurring on or after 6/01/2008)	COMMITTED MINIMUM HOURS OPEN	OTHER
Station 1	Fire Station 1 LLC, Patrick Wellnitz	Class B Beer & Liq.	Ok	Ok - ext. up for service in June	No record	Sun - 10 a.m. - 2 p.m. Mon - Thur 3 p.m. - 2 a.m. Fri - noon - 2:30 a.m. Sat. 10 a.m. - 2:30 a.m.	Foodservice Est. Inspection Report 08/02/10
Sugar Bay	MBCK, LLC Gary R. Fiedler Victoria M. Fiedler	Class B Beer & Liq.	Ok	Ok - rec. Co detector	No record	Summer - 6:30 a.m. - 7 p.m. Mon. - Fri. 8 a.m. - 2 p.m. Sat. and Sun. School year - Mon - Thur 6:30 - 9 p.m., Fri 6:30 a.m. - 7 p.m. Sat - Sun 8 a.m. - 5 p.m.	Retail Food Establishment License Exp. 06/30/11
Tokyo	En Zheng	Class B Beer & Liq.	Ok		No record	7 days a week - 11 a.m. - 10 p.m.	Restaurant License exp. 6/30/11
Whitewater Street Restaurant	C. Christon, LLC Christ G. Christon	Class B Beer & Liq.	1) back area under construction 2) Other men's under construction - need to check later 3) Drop off copy of dates of cleaning of grease trap 4) Post number of occupancy for men's	Ok - bar still in construction	No record	Mon - 7 a.m. - 8 p.m. Tu - Th - 6 a.m. - 8 p.m. Fri - Sat 6 a.m. - 9 p.m. Sun 7 a.m. - 8 p.m.	Restaurant License exp. 6/30/11

\*C-1

**FIRE INSPECTION REPORT FORM**



LOCATION (Legal Address) 214 Whitewater HEIGHT 14-1 CONSTRUCTION \_\_\_\_\_  
 NAME OF BUSINESS Hawks Nest MAILING CITY Whitewater ZIP CODE 53190  
 DATE OF INSPECTION 4-28-11 COMPLIANCE DATE \_\_\_\_\_

\* Violations requiring corrective actions are circled below.

\* §101.14 of the Wisconsin Statutes constitutes every Fire Chief a deputy of the Wisconsin Department of Commerce, and requires the chief or appointed inspectors to make inspections periodically for the purpose of ascertaining and causing to be corrected any conditions liable to cause fire, or any violation of any law or local ordinance relating to fire hazards or prevention of fires per Comm. 14.

<p>Ch 1 Administration [Also See Comm 14.01]          14.01(2)(f) Temporary Use          1.7.8 Authority -- Right of Entry to Inspect  <b>Ch 10 General Fire Safety</b>          10.1 Fundamental Requirements          10.2 Owner/Occupant Responsibilities [Also See Comm 14.01(3)]          10.3 Occupancy          10.4 Maintenance, Inspection, &amp; Testing          10.5 Building Evacuation          10.6 Fire Drills          10.7 Reporting of Fires &amp; Other Emergencies          10.8 Tampering with Fire Safety Equipment          10.10 Smoking          10.11 Open Fires, Incinerators, &amp; Commercial Fireplaces          10.12 Fire Protection Markings          10.13 Vacant Buildings and Premises          10.14 Combustible Vegetation          10.16 Outside Storage [Also See Comm 14.10(2)]          10.19 Combustible Materials  <b>Ch 11 Building Services</b>          11.1 Electrical Fire Safety          11.2 Heating, Ventilation, &amp; Air-Conditioning          11.3 Elevators, Escalators, &amp; Conveyors          11.5 Heating Appliances [Also See Comm 14.11]          11.6 Rubbish Chutes, Incinerators, &amp; Laundry Chutes          11.8 Smoke Control          11.9 Emergency Command Center  <b>Ch 12 Features of Fire Protection</b>          12.1 General          12.2 Construction          12.3 Fire-Resistant Assemblies          12.4 Fire Doors and Windows          12.5 Interior Finish          12.6 Furnishings, Contents, Decorations, &amp; Treated Finishes          12.7 Fire Barriers          12.8 Smoke Partitions          12.9 Smoke Barriers  <b>Ch 13 Fire Protection Systems</b>          13.1 General          13.2 Standpipe Systems          13.3 Automatic Sprinklers [Also See Comm 14.13(1)-(2)]          13.6 Portable Extinguishers          13.7 Detection, Alarm, &amp; Communications Systems [Also See Comm 14.13(3)]          13.8 Other Fire Protection systems  <b>Ch 14 Means of Egress</b>          14.4 Means of Egress Reliability          14.5 Doors          14.12 Illumination of Means of Egress          14.13 Emergency Lighting          14.14 Marking of Means of Egress          Ch 15 Planned Building Groups</p>	<p>Ch 16 Safeguards During Building Construction, Alteration, &amp; Demolition Operations          16.1 General Requirements          15.4 Safeguarding Construction &amp; Alteration Operations [Also See Comm 14.16]  <b>Ch 17 Wildland Urban Interface</b>  <b>Ch 18 Fire Department Access &amp; Water Supply</b> [Also See Comm 14.01(2)(a, a-b)]          18.1 General          18.2 Fire Department Access  <b>Ch 19 Combustible Waste &amp; Refuse</b>          19.1 General          19.2 Combustible Waste &amp; Refuse  <b>Ch 20 Occupancy Fire Safety</b>          Ch Scope: Furnishings; Contents; Decorations; Treated Finishes; Scenery; Foam; Exhibit &amp; Display Materials; Hot Plates; Cooking Operations; Exposition Facilities &amp; Trade Shows; Crowd Managers; Multi-Level Play Structures; High-Rise Buildings; Bulk Storage; Pesticides &amp; Herbicides          14.20 Open Flame Devices &amp; Pyrotechnics All Occupancies  <b>Ch 21 Airports &amp; Heliports</b>  <b>Ch 22 Automobile Wrecking Yards</b>  <b>Ch 23 Cleanrooms</b>  <b>Ch 24 Drycleaning</b>  <b>Ch 25 Grandstands &amp; Bleachers, Folding &amp; Telescopic Seating, Tents, &amp; Membrane Structures</b>          25.1 General          25.2 Tents  <b>Ch 26 Laboratories Using Chemicals</b>  <b>Ch 27 Manufactured Home &amp; Recreational Vehicle Sites</b> [Not included - See Comm 14.27 &amp; Comm 26]  <b>Ch 28 Marinas, Boatyards, Marine Terminals, &amp; Piers</b>  <b>Ch 29 Parking Garages</b>          29.1 General  <b>Ch 30 Motor Fuel Dispensing Facilities &amp; Repair Garages</b>          30.1 General          30.2 Repair Garages          30.3 Operational Requirements  <b>Ch 31 Forest Products</b>  <b>Ch 32 Motion Picture &amp; Television Production Studio Soundstages &amp; Approved Production Facilities</b>  <b>Ch 33 Outside Storage of Tires</b>  <b>Ch 34 General Storage</b>          34.1 General          34.4 Storage Arrangement          34.5 General Fire Protection          34.9 Building Equipment, Maintenance, &amp; Operations          34.10 Storage of Idle Pellets  <b>Ch 40 Dust Explosion Prevention</b>  <b>Ch 41 Hot Work Operations</b>          41.1 General          41.2 Responsibility for Hot Work          41.3 Fire Prevention Precautions</p>	<p>Ch 42 Refueling          42.1 General  <b>Ch 43 Spraying, Dipping, &amp; Coating Using Flammable or Combustible Materials</b> [Also See Comm 14.01(1)(f) &amp; Comm 10]          43.1 Application          43.5 Miscellaneous Spray Operations  <b>Ch 44 Solvent Extraction</b>  <b>Ch 45 Combustible Fibers</b>          45.1 General          45.3 No Smoking          45.6 Baled Storage          45.7 Storage of Hay, Straw, &amp; Other Similar Agricultural Products  <b>Ch 50 Commercial Cooking Equipment</b>          50.1 Application          50.2 General Requirements          50.4 Fire-Extinguishing Equipment          50.5 Procedures for the Use &amp; Maintenance of Equipment          50.6 Minimum Safety Requirements for Cooking Equipment  <b>Ch 51 Industrial Ovens &amp; Furnaces</b>  <b>Ch 52 Stationary Lead-Acid Battery Systems</b>  <b>Ch 53 Mechanical Refrigeration</b>  <b>Ch 60 Hazardous Materials</b>  <b>Ch 61 Aerosol Products</b>  <b>Ch 63 Compressed Gases and Cryogenic Fluids</b>          63.1 General Provisions          63.3 Compressed Gases  <b>Ch 64 Corrosive Solids &amp; Liquids</b>  <b>Ch 65 Explosives, Fireworks, &amp; Model Rocketry</b> [Also See Comm 14.65]          65.1 General          65.2 Display Fireworks          65.3 Pyrotechnics Before a Proximate Audience          65.51 Sale, Handling, &amp; Storage of Consumer Fireworks  <b>Ch 66 Flammable &amp; Combustible Liquids</b> [Also See Comm 14.01(1)(f) &amp; Comm 10]          66.4 Container &amp; Portable Tank Storage          66.5 Operations  <b>Ch 67 Flammable Solids</b>  <b>Ch 68 Highly Toxic and Toxic Solids &amp; Liquids</b>  <b>Ch 69 Liquefied Petroleum Gases &amp; Liquefied Natural Gases</b>          69.1 General Provisions          69.2 LP-Gas Equipment &amp; Appliances          69.3 Installation of LP-Gas Systems          69.5 Storage of Cylinders Awaiting Use, Resale, or Exchange          69.8 Liquefied Natural Gas [LNG]  <b>Ch 70 Oxidizers &amp; Organic Peroxides</b>  <b>Ch 71 Pyrophoric Solids &amp; Liquids</b>  <b>Ch 72 Unstable [Reactive] Solids &amp; Liquids</b>  <b>Ch 73 Water-Reactive Solids &amp; Liquids</b>          * Other Violations - See Remarks Below</p>
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REMARKS - A COPY OF THIS NOTICE WILL BE ON FILE IN THE OFFICE OF THE FIRE INSPECTOR FOR FURTHER ACTION  
 Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04 (1)(m)].

DAW - 630-965-2186  
 JOE - 312-925-6897

*Absolutely No Cooking*

*See Attached*

*Jan Zabansky*  
 OWNER/AGENT/MANAGER REPRESENTATIVE

*B. Hutter #109*  
 INSPECTING OFFICER/FIRE DEPARTMENT

#C-1

CoW  
312 Whitewater Street AVE W  
Whitewater, WI 53190

Violation Notice

Tuesday May 3, 2011

Hawk's Nest  
214 W Whitewater ST  
Whitewater, WI 53190

An inspection of your facility on Thursday April 28, 2011 revealed the violations listed below.

ORDER TO COMPLY: Since these conditions are contrary to law, you must correct them upon receipt of this notice. An inspection to determine compliance with this Notice will be conducted on Monday May 16, 2011 at 13:59:36

If you fail to comply with this notice before the reinspection date listed, you may be liable for the penalties provided for by law for such violations.

Violation Code	Article	Division	Page	Count
50.5.2.2 Actuation Components			0	0
All actuation components, including remote manual pull stations, mechanical or electrical devices, detectors, and actuators, shall be checked for proper operation during the inspection in accordance with the manufacturer's listed procedures. [96:11.2.2]				
63.3.2 Storage			0	0
ALL COMPRESSED GAS CYLINDERS MUST BE CHAINED IN AN UPRIGHT POSITION, TO ENSURE TIPPING IS IMPOSSIBLE				
50.4 Fire-Extinguishing Equipment			0	0
THE HOOD SYSTEM IN PLACE IS COMPLETELY DOWN AND OUT OF SERVICE				
50.5.1.8 Inspection And Maintenance			0	0
Inspection and maintenance of equipment allowed in 9.3.1 of NFPA 96 shall be conducted by properly trained and qualified persons at a frequency determined by the manufacturer's instructions or equipment listing. [96:11.1.8]				
BAR PERSONNEL DO NOT QUALIFY				
50.2.1.1 Cooking Equipment			0	0
Cooking equipment used in processes producing smoke or grease-laden vapors shall be equipped with an exhaust system that complies with all the equipment and performance requirements of this chapter. [96:4.1.1]				
UPON FURTHER INSPECTION OF HOOD SYSTEM, WE HAVE FOUND THAT THE HOOD SYSTEM IN PLACE IS NOT IN ACCORDANCE WITH NFPA 1, CHAPTER 50.2.1.1				

\*C-1

CoW  
312 Whitewater Street AVE W  
Whitewater, WI 53190

Violation Notice

Tuesday May 3, 2011

Hawk's Nest  
214 W Whitewater ST  
Whitewater, WI 53190

50.4.12.1\* Portable Fire Extinguishers 0 0

Portable fire extinguishers shall be installed in kitchen cooking areas in accordance with Section 13.6 and shall be specifically listed for such use. [96:10.10.1]

13.6.1 General Requirements 0 0

The selection, installation, distribution, inspection, maintenance, and testing of portable fire extinguishers shall be in accordance with NFPA 10 and Section 13.6.

NEED EXTRA ABC EXTINGUISHER, behind bar area on the dance floor side.

13.1 General 0 0

NO WORKING DETECTION SYSTEMS IN PLACE, I.E. SMOKE DETECTOR

14.4 Means Of Egress Reliability 0 0

Means of Egress for bartenders and any personnel behind bar of in service area, is the path leading behind the bar towards the main entrance way. Due to the compromised floor behind the bar, we request the following:

1. Personnel be told to use rear exit of bar in case of emergency
2. A barrier be put up on front entrance to behind bar, to keep people from overloading the weakened area
3. IMMEDIATE ATTENTION BE GIVEN TO THE FLOOR AND AREAS THAT HAVE BEEN WEAKENED BY SEVERE WATER DAMAGE.

11.1.7.5 Extension Cords 0 0

Extension cords and flexible cords shall not be affixed to structures; extend through walls, ceilings, or floors, or under doors or floor coverings; or be subject to environmental or physical damage.

Stettner, Brenton S  
Inspector

X \_\_\_\_\_  
Occupant/Owner



Permit # 64-11  
Official Use Only

**APPLICATION FOR SIDEWALK CAFÉ PERMIT**  
PERMIT VALID FROM JULY 1<sup>ST</sup> – JUNE 30<sup>TH</sup>  
APPLICATION IS HEREBY MADE FOR A REVOCABLE SIDEWALK CAFÉ PERMIT  
TO OPERATE A SIDEWALK CAFÉ IN ACCORDANCE WITH CHAPTER 5.19  
OF THE CITY OF WHITEWATER, WI CODE OF ORDINANCES

**BUSINESS INFORMATION**

Business Name: Station 1  
Company Name: Fire Station 1 LLC  
Business Address: 140 W Center St Whitewater  
Street City State Zip  
Mailing Address: 138 W Center St Whitewater  
Street City State Zip  
Business Phone: 473-4455 Current Zoning Classification: \_\_\_\_\_

**APPLICANT INFORMATION**

Name: PATRICK WELWITE Title: Owner  
First Middle Last  
Home Address: 629 E Cravath St Whitewater  
Street City State Zip  
Phone: 920 650 0056 E-Mail: \_\_\_\_\_ cell phone \_\_\_\_\_

**DIRECTIONS**

Bring the following to the Department of Public Works window located on the second floor of the Whitewater Municipal Center on 312 W. Whitewater Street, Whitewater, WI 53190:

- Completion of Application for Sidewalk Café Permit
- Site Plan Layout (to be reviewed by Neighborhood Services, Fire Department and Police Department).

*1stchief@whitewaterfire.org*

- Description of items to be placed outside (standards are on next page)
- Copy of a current certificate of commercial liability insurance in the amount of at least \$100,000 per occurrence. Original Certificate of Comprehensive General Liability Insurance for at least \$100,000 which names the City of Whitewater as additional insured and covered area includes the sidewalk café
- A copy of applicable valid Wisconsin Seller's Permit
- A copy of applicable valid Alcohol Beverage License (only if alcohol is to be served)

**BASIC INFORMATION**

\*\* WILL YOU BE SERVING ALCOHOLIC BEVERAGES?

Yes

No

*\*\* If you answered "Yes" you will have to change your Alcohol Beverage License to include the sidewalk café. Please contact the City Clerk to make the necessary arrangements before Alcoholic Beverages can be sold .*

**SITE PLAN LAYOUT SPECIFICATIONS**

- Must be to Draw Neatly with Straight Lines and all items Labeled with sizes
- Must be on 8-1/2" X 11" paper
- Must depict existing sidewalk area and adjacent private property
- Must depict proposed sidewalk café with placement of:
  - chairs
  - tables
  - planters
  - umbrellas
  - other items to be placed in sidewalk café
- Must depict existing trees, doorways, steps, parking meters, sidewalk benches, trash receptacles, light poles and any other sidewalk obstructions
- Must show 4 feet of unobstructed sidewalk for public use

**DESCRIPTION OF PLACED ITEMS OUTSIDE**

- Must have picture or description of all proposed
  - tables
  - chairs
  - umbrellas
  - barriers ( fencing , planters )
  - all other objects to be placed on sidewalk
- Description or picture must be accompanied by dimensions

APPLICATION FOR A SIDEWALK CAFÉ PERMIT

In specific consideration for the City granting a sidewalk café permit to the applicant named below, the permit holder shall agree to pay, indemnify and hold harmless the City and their respective agents, guests, invitees and employees from all suits, actions, claims, demands, damages, losses and other reasonable expenses and cost of every kind and description including attorney's fees to which the City, or its officers, agents or employees may be subject to as a result of the grant of this permit.

I hereby state that I have answered all of the preceding questions and that the information contained herein is true and correct to the best of my knowledge and belief. In addition, that I have read, understand and will comply with Chapter 5.19, Sidewalk Café Permit, and all other applicable laws.

[Signature] 5-2-11  
Signature of Applicant Date

[Signature] 4-4-11  
City Permit Approved By Date

KATHLEEN WELLS  
Print Name

**OFFICIAL USE ONLY**

City Council Approval . Date \_\_\_\_\_ (circle one) Approved Disapproved

Comments: \_\_\_\_\_

\_\_\_\_\_

To be filled out by Police Department . Date \_\_\_\_\_ (circle one) Approved Disapproved

\_\_\_\_\_

To be filled out by Neighborhood Services Director (circle one) Approved Disapproved  
Date 4-4-11

Conditions/Restrictions/Reason for Denial: \_\_\_\_\_

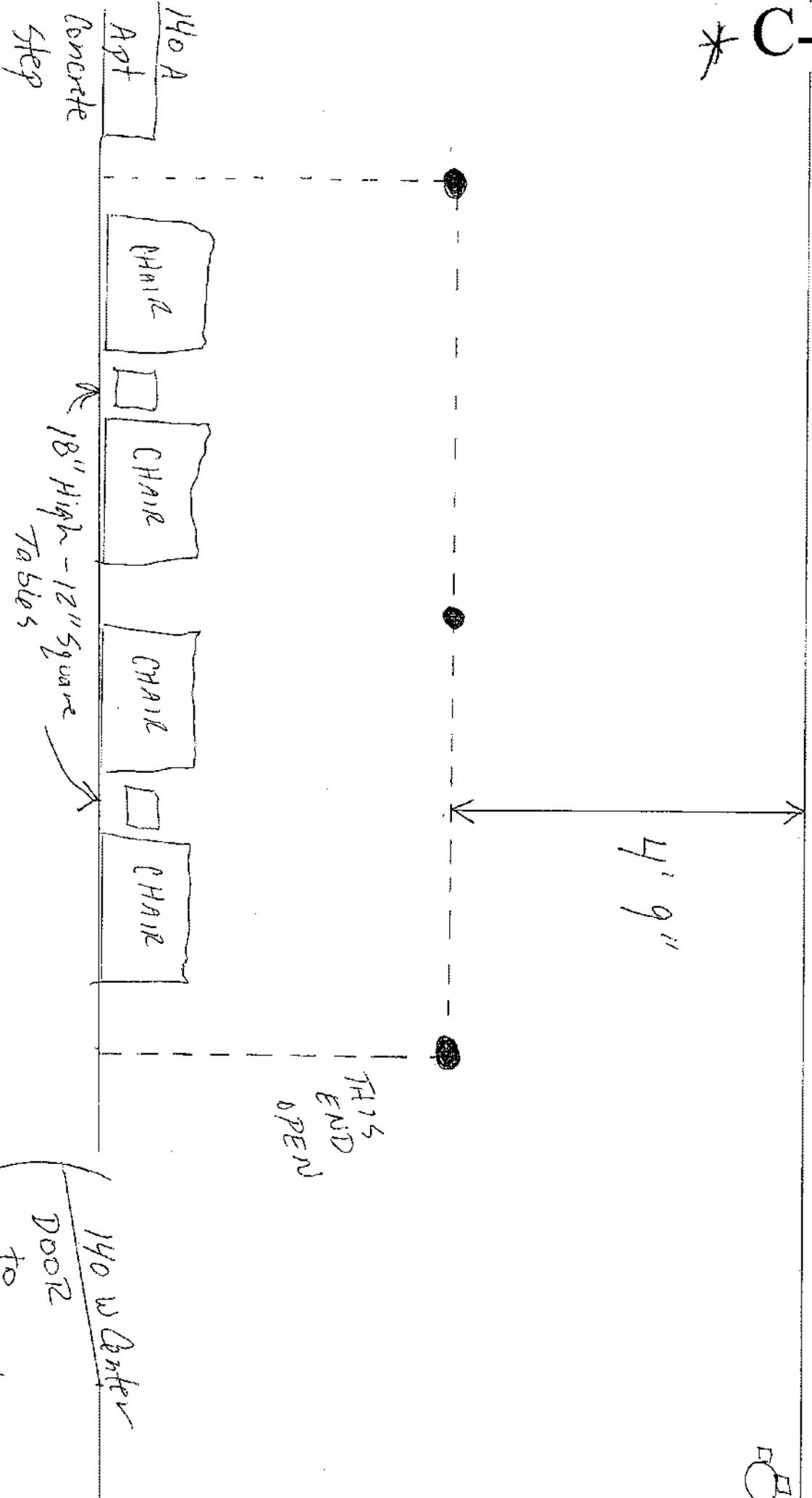
\_\_\_\_\_

\_\_\_\_\_

\* C-2

W. Center Street

FILE  
HAYSON



CHAIRS - Decorative metal  
Outdoor Chair

Barrier is made with antique Fire hose.

North  
↓



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
05/04/2011

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	BINNING & DICKENS INS SERVICES LTD 329 W CENTER PO BOX 179 WHITEWATER, WI 53190	CONTACT NAME: Ron Binning	
		PHONE (A/C No. Ext): (262) 473-3930	FAX (A/C. No.):
		INSURER(S) AFFORDING COVERAGE	
INSURED	FIRE STATION 1 LLC dba STATION 1 140 W CENTER ST WHITEWATER, WI 53190	INSURER A: Badger Mutual Insurance Co	NAIC # 13420
		INSURER B:	
		INSURER C:	
		INSURER D:	
		INSURER E:	

**COVERAGES**      **CERTIFICATE NUMBER:**      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADD. SUBR INSR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input type="checkbox"/> GENERAL LIABILITY <input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> OCCUR  GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PROJ <input type="checkbox"/> LOC	X	0062188475	07/30/2010	07/30/2011	EACH OCCURRENCE \$ 1000000 DAMAGE TO RENTED PREMISES (Per occurrence) \$ 100000 MED EXP (Any one person) \$ 2000 PERSONAL & ADV INJURY \$ 1000000 GENERAL AGGREGATE \$ 2000000 PRODUCTS - COMP/OP AGG \$ 2000000
	<input type="checkbox"/> AUTOMOBILE LIABILITY <input type="checkbox"/> ANY AUTO ALL OWNED AUTOS <input type="checkbox"/> HIRED AUTOS <input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS					COMBINED SINGLE LIMIT (Per accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> UMBRELLA LIAB <input type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE <input type="checkbox"/> DEF <input type="checkbox"/> RETENTION \$					EACH OCCURRENCE \$ AGGREGATE \$
A	<input type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS LIABILITY <input type="checkbox"/> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe lines: DESCRIPTION OF OPERATIONS below		0062188475a	07/30/2010	07/30/2011	<input checked="" type="checkbox"/> W/3 STATE LTR/LIMITS <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 100000 B.L. DISEASE - EA EMPLOYEE \$ 100000 B.L. DISEASE - POLICY LIMIT \$ 500000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Sidewalk Cafe

City of Whitewater is additional insured

<b>CERTIFICATE HOLDER</b> City of Whitewater 312 W. Whitewater St. Whitewater, WI 53190	<b>CANCELLATION</b> SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE <i>Ronald Binning</i>

# City of Whitewater Water Rate Study Cost of Service Presentation

Jonathan Cameron  
Economic Consultant

Municipal Economics & Planning, a division of Ruckert/Mielke  
June 7, 2011

# Topics Covered

- ▶ Update on review of Application to Increase Water Rates from PSC
  
- ▶ Cost of Service Rate Study and Design
  - Comparison of current rates vs. lifeline rate design
  
- ▶ Questions?

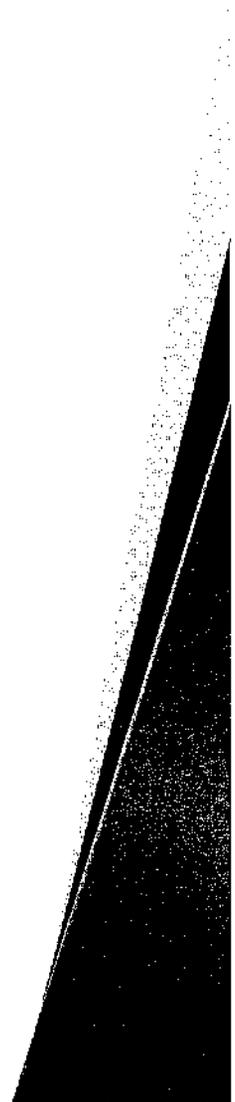
# Update on Application to Increase Water Rates

- ▶ Submitted to the PSC with a request for a 23% increase to revenues at existing rates
- ▶ Included a request for the maximum return on net investment rate base (ROI) = 6.90%
- ▶ Still projected a slight cash shortfall for 2011
- ▶ Analysis showed the need for a full rate case in 2013 with a projected 9.0% rate increase

# PSC Approval of Application to Increase Water Rates

- ▶ PSC staff reclassified assets within the City's TID 4 from contributed to utility financed
- ▶ City earns depreciation and ROI on utility financed assets, but not contributed assets
- ▶ Resulted in a recommended increase of 27% to revenues at existing rates with maximum 6.90% ROI
- ▶ City staff decided to request a reduction of the ROI to 6.00% to achieve a 23% increase
- ▶ 6.00% ROI maintains adequate cash flows, reserves.
- ▶ Recommend a simplified rate case in 2013

# Cost Of Service Rate Study and Design



# Rate Design Options

- ▶ Option 1: Keep current rate structure
  - Disadvantage: Current rate structure does not address very low usage customers
  
- ▶ Option 2: Create “lifeline” rate for low users
  - 2 blocks for residential users: lifeline block for minimum usage
  - Second block for most residential consumption
  - Continue with declining block rate structure for non-residential users
  - Common Council discussed the merits of a “lifeline” rate at its April 27<sup>th</sup> Special Meeting
  - City Staff and Consultant recommend the lifeline rate structure

# Option 1: Keep Existing Rate Structure

## Service Charge

Connection Size	Current Quarterly Charge	Proposed Quarterly Charge	Percent Change
5/8-inch	\$17.91	<b>\$21.00</b>	17%
3/4-inch	\$17.91	<b>\$21.00</b>	17%
1-inch	\$24.90	<b>\$31.50</b>	27%
4-inch	\$155.70	<b>\$190.50</b>	22%
6-inch	\$239.79	<b>\$339.00</b>	41%
8-inch	\$361.23	<b>\$519.00</b>	44%

## Volume Charge

	Water Use Block (gal)	Current Charge (\$/1000 gal)	Proposed Charge (\$/1000 gal)	Percent Change
FIRST	40,000	\$1.82	<b>\$2.25</b>	23.6%
NEXT	1,160,000	\$1.46	<b>\$1.86</b>	27.4%
OVER	1,200,000	\$1.06	<b>\$1.36</b>	28.3%

## Public Fire Protection Charge

Connection Size	Current Quarterly Charge	Proposed Quarterly Charge	Percent Change
5/8-inch	\$17.26	<b>\$20.58</b>	19%
3/4-inch	\$17.26	<b>\$20.58</b>	19%
1-inch	\$43.14	<b>\$51.00</b>	18%
4-inch	\$431.93	<b>\$513.00</b>	19%
6-inch	\$862.80	<b>\$1,029.00</b>	19%
8-inch	\$1,381.33	<b>\$1,647.00</b>	19%

# Option 1: Keep Existing Rate Structure

Customer Type	Meter Size (Inches)	Volume 1,000 Gal
S. Residential	3/4	6
Ave. Residential	3/4	20
Commercial	3/4	75
Public Authority	2	750
L. Industrial (monthly)	8	10,000
L. Industrial (monthly)	8	35,000

Quarterly Bill w/Public Fire Protection		
Bill at Old Rates	Bill at New Rates	Percentage Change
\$46.09	\$55.08	19.5%
\$71.57	\$86.58	21.0%
\$159.07	\$196.68	23.6%
\$1,310.67	\$1,652.85	26.1%
\$11,434.20	\$13,978.52	22.3%
\$37,845.64	\$48,527.19	28.2%

# Option 2: Establish a Lifeline Rate

## Service Charge

Connection Size	Current Quarterly Charge	Proposed Quarterly Charge	Percent Change
5/8-inch	\$17.91	<b>\$21.00</b>	17%
3/4-inch	\$17.91	<b>\$21.00</b>	17%
1-inch	\$24.90	<b>\$31.50</b>	27%
4-inch	\$155.70	<b>\$190.50</b>	22%
6-inch	\$239.79	<b>\$339.00</b>	41%
8-inch	\$361.23	<b>\$519.00</b>	44%

## Volume Charge Residential

	Water Use Block (gal)	Current Charge (\$/1000 gal)	Proposed Charge (\$/1000 gal)	Percent Change
FIRST	6,000	\$1.82	<b>\$1.64</b>	-9.9%
NEXT	34,000	\$1.82	<b>\$2.24</b>	23.1%
NEXT	1,160,000	\$1.46	<b>\$2.24</b>	53.4%
OVER	1,200,000	\$1.06	<b>\$2.24</b>	111.3%

## Non-Residential

	Water Use Block (gal)	Current Charge (\$/1000 gal)	Proposed Charge (\$/1000 gal)	Percent Change
FIRST	40,000	\$1.82	<b>\$2.07</b>	13.7%
NEXT	1,160,000	\$1.46	<b>\$2.07</b>	41.8%
OVER	1,200,000	\$1.06	<b>\$1.34</b>	26.4%

## Public Fire Protection Charge

Connection Size	Current Quarterly Charge	Proposed Quarterly Charge	Percent Change
5/8-inch	\$17.26	<b>\$20.58</b>	19%
3/4-inch	\$17.26	<b>\$20.58</b>	19%
1-inch	\$43.14	<b>\$51.00</b>	18%
4-inch	\$431.93	<b>\$513.00</b>	19%
6-inch	\$862.80	<b>\$1,029.00</b>	19%
8-inch	\$1,381.33	<b>\$1,647.00</b>	19%

# Option 2: Establish a Lifeline Rate

Customer Type	Meter Size (Inches)	Volume 1,000 Gal
S. Residential	3/4	6
Ave. Residential	3/4	10
Commercial	3/4	75
Commercial	1 1/2	400
Public Authority	2	750
L. Industrial (monthly)	8	10,000
L. Industrial (monthly)	8	35,000

Quarterly Bill w/Public Fire Protection		
Bill at Old Rates	Bill at New Rates	Percentage Change
\$46.09	\$51.42	11.6%
\$53.37	\$60.38	13.1%
\$159.07	\$196.83	23.7%
\$726.71	\$982.50	35.2%
\$1,310.67	\$1,794.75	36.9%
\$11,434.20	\$13,865.33	21.3%
\$37,845.64	\$47,914.00	26.6%

# Conclusion

- ▶ The structure of the rate design ultimately is a policy decision for the Common Council
- ▶ Goal is to file one Cost of Service Rate Study to the PSC with the goal of implementing new rates by the fourth quarter, 2011

# Community Comparison at Current Rates

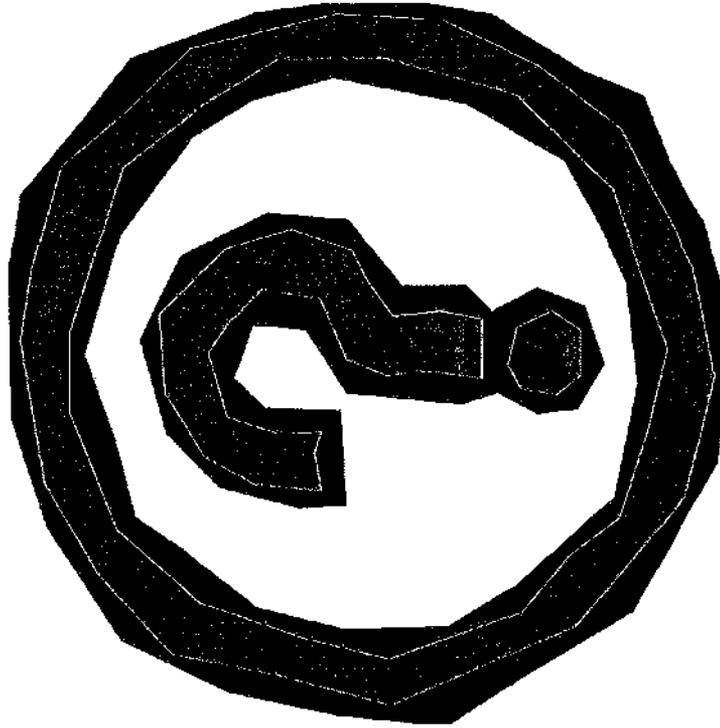
Community	Annual Bill at Current Rates
Elkhorn, City *	\$559.94
Mukwonago, Village *	\$409.00
Delavan, City *	\$396.17
Darien, Village *	\$352.92
East Troy, Village	\$333.40
Watertown, City	\$308.37
Burlington, City *	\$289.35
Palmyra, Village	\$283.40
Oconomowoc, City *	\$251.96
Jefferson, City	\$234.92
Milton, City	\$232.04
<b>Whitewater, City</b>	<b>\$199.04</b>
Fort Atkinson, City *	\$184.39
Lake Geneva, City	\$179.18
Janesville, City *	\$139.53
2010 Statewide Average	\$290.91

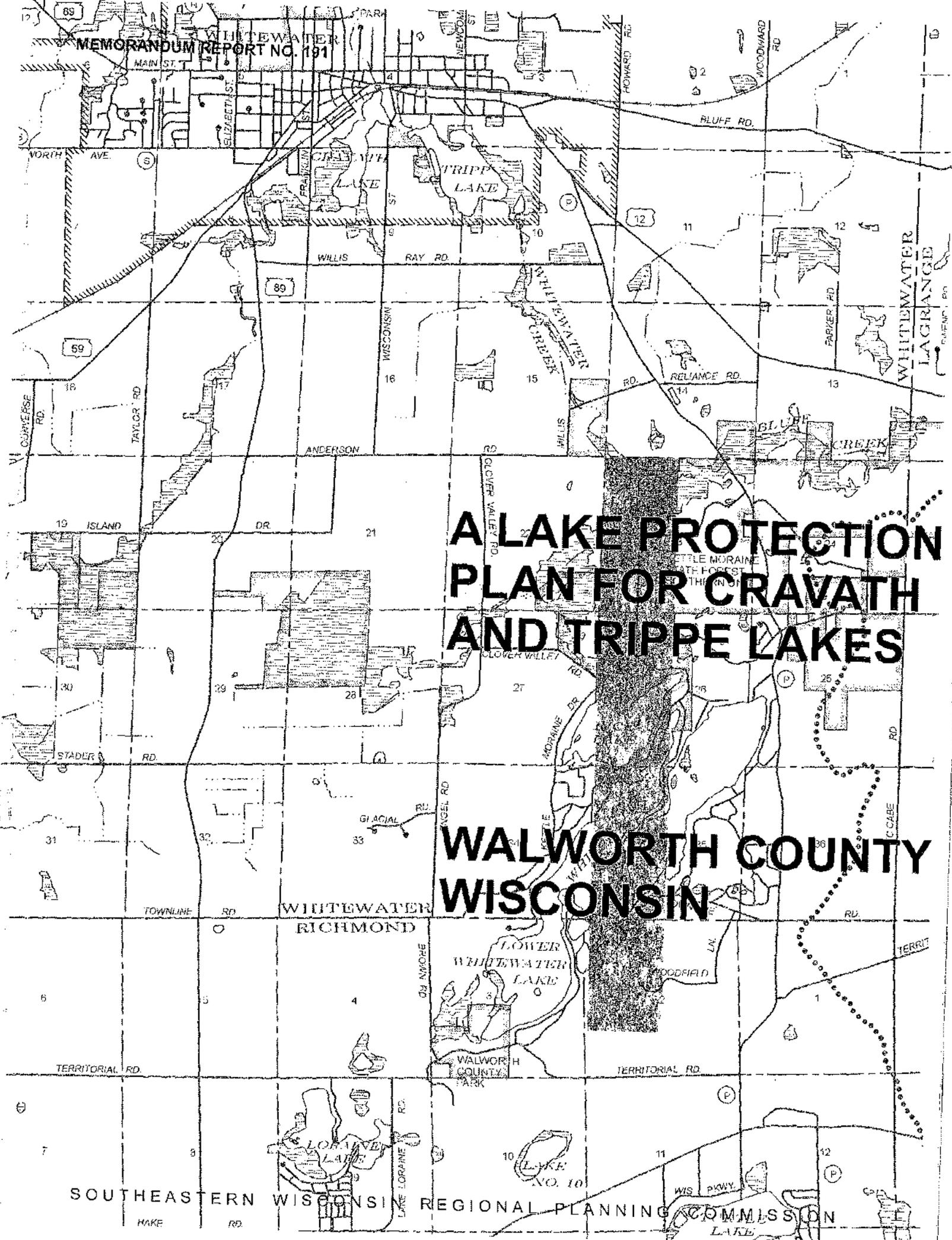
Source: 2010 Wisconsin Community Water & Sewer Rate Survey, conducted by Municipal Economics & Planning.

\* indicates that the total reflects a rate increase since the time the survey was prepared.

Annual charges are based on annual residential consumption of 70,000 gallons. Does not include charges for public fire protection.

# Questions





# A LAKE PROTECTION PLAN FOR CRAVATH AND TRIPPE LAKES

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Donald P. Simon, RLS.....Chief Planning Illustrator  
William J. Stauber..... Chief Land Use Planner

Special acknowledgment is due to Dr. Jeffrey A. Thornton, CLM, PH, and Dr. Thomas M. Slawski, SEWRPC Principal Planners; Mr. Edward J. Schmidt, SEWRPC GIS Planning Specialist; Mr. Aaron W. Owens, SEWRPC Research Analyst; and, Mr. Michael A. Borst, SEWRPC Research Aide, for their contributions to the conduct of this study and the preparation of this report.

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**MEMORANDUM REPORT  
NUMBER 191**

**A LAKE PROTECTION PLAN  
FOR CRAVATH AND TRIPPE LAKES  
WALWORTH COUNTY, WISCONSIN**

Prepared by the

Southeastern Wisconsin Regional Planning Commission  
W239 N1812 Rockwood Drive  
P.O. Box 1607  
Waukesha, Wisconsin 53187-1607  
*www.sewrpc.org*

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April 2011

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## Chapter I

# INTRODUCTION

### BACKGROUND

Cravath Lake, a 68-acre impounded drainage lake on Spring Brook, is located largely within the City and Town of Whitewater in Walworth County. Trippe Lake—whose name appears variously as Trapp Lake and Tripp Lake—is a 113-acre drainage lake located on Whitewater Creek, immediately upstream of Cravath Lake.<sup>1,2</sup> The Lakes are located within U.S. Public Land Survey Township 4 North, Range 15 East, Sections 3 and 4, and 9 and 10, in northwestern Walworth County. The two lakes are situated on the southern side of the City of Whitewater, and both the lakes and their immediate tributary areas have been partially incorporated into the City's park and open space system where they provide a variety of urban recreational services including walking trails, fishing spots, and limited boating/canoeing, as well as serving as visual amenities. Outflow from Trippe Lake flows into the Cravath Lake and thence northerly, via the Whitewater Creek, to the Bark River, a tributary stream of the Rock River. Water quality in the Creek was historically degraded by the discharge to the Creek of treated effluent from the old City of Whitewater wastewater treatment plant, which was upgraded in 1982. Subsequent to this upgrade, the quality of the effluent has improved, as has the quality of the River, which is now categorized as fair by the Wisconsin Department of Natural Resources (WDNR).<sup>3</sup>

The location of Cravath and Trippe Lakes within the City of Whitewater in the greater Milwaukee and Chicago metropolitan areas may be expected to contribute to a continued demand for further urban development. The presence of the University of Wisconsin-Whitewater campus is expected to contribute to this demand, particularly for residential development. Such development in the vicinity of the Lakes is likely to result in concomitant demands for outdoor and water-based recreational opportunities. Currently, these opportunities are provided for through City park and open space lands located on the Lakes.

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<sup>1</sup>For the purposes of this report, the spelling "Trippe Lake" has been adopted; however, the lake name appears as Tripp Lake (Trapp Lake) in Wisconsin Department of Natural Resources Publication No. PUBL-WT-280-98-REV, Lower Rock River Basin: Water Quality Management Plan, October 1998, and in Wisconsin Department of Natural Resources Publication No. PUBL-FH-800 2005, Wisconsin Lakes, 2005.

<sup>2</sup>The Lakes are apparently named in honor of James Trippe, the original proprietor of the town site, and Prosper Cravath, the initial surveyor and a leading citizen of the town; see Fred G. Kraege, Whitewater, Arcadia Publishing, 128 pages, May 2006. ISBN: 9780738540078.

<sup>3</sup>See SEWRPC Community Assistance Planning Report No. 94, 2nd Edition, Sanitary Sewer Service Area for the City of Whitewater, Walworth County, Wisconsin, March 1995, as amended.

In addition to the parklands, other open lands, including a cemetery, occupy portions of the Lake shores. Such development limits the area available for urban density development or redevelopment within the areas immediately tributary to the Lakes. Nevertheless, the community recently has witnessed the development of multi-family condominiums that effectively increases the density of dwelling units adjacent to the Lakes. These types of development have a direct influence on stormwater, increasing the volume and rate at which stormwater flows off of the impervious surfaces—roofs, driveways, and walkways—associated with this type of infrastructure, which, pursuant to current state regulatory requirements, must be mitigated using stormwater management practices.

Upstream of the Lakes lies an active agricultural area that surrounds the two inflowing tributary streams—Whitewater Creek, which rises from Whitewater (and Rice) Lakes in the Southern Unit of the Kettle Moraine State Forest, and Spring Brook. From Whitewater Lake to Trippe Lake at Whitewater, the water quality of the Whitewater Creek is considered good by the WDNR. An approximately 1.9-mile reach of Whitewater Creek from its confluence with Bluff Creek downstream to Willis Ray Road in the Town of Whitewater is considered to have the potential to become a Class II trout water segment; however, the WDNR considers that additional land acquisition and habitat improvement would be necessary to achieve this potential.<sup>4</sup> Nevertheless, the active agricultural use of portions of this watershed has led to concerns over the generation of sediments through erosion and streambank failures and the introduction of other agricultural contaminants which may be deposited into the Lakes.

As a consequence of the widespread nature of these concerns, the Cravath and Trippe Lakes community residents have expressed a clear desire to investigate and quantify these concerns, and to define any issues of concern. As an initial step in this process, the City of Whitewater created an *ad hoc* lakes committee to study, evaluate, and document a range of remedial and organizational measures, contributing to an effective organizational mechanism for the management of the root causes of the community concerns, and, ultimately, to a lake protection plan for the Lakes. This report is a response to the request of the City of Whitewater *Ad Hoc* Lakes Committee for assistance in conducting the diagnostic analysis and protection plan formulation.

## HISTORY OF THE LAKES

Trippe and Cravath Lakes share a long history. This history begins with the founding of what was to become the City of Whitewater, within which the Lakes are situated, at the confluence of Whitewater Creek and Spring Brook. The then Town was named for the soft, white clay that lined the streams flowing through the area.<sup>5</sup> Samuel Prince, the first settler, erected a cabin on his 60-acre claim in 1837, and a gristmill, sawmill, paper mill, and numerous stores were soon established in this agricultural area. Twenty-one years later, the Town of Whitewater “came of age” as the Milwaukee and Mississippi Railroad built a station in the Town on its Milwaukee to Prairie du Chien route, and the Esterly Grain Harvester Company and Whitewater Wagon Company, among others, transformed the Town of Whitewater into an industrial town. The Town was incorporated as a Village that same year, and, in 1885, the then Village of Whitewater became a City. In 1868, the State’s second normal school—later the University of Wisconsin-Whitewater—located here, further changing the character of the community.

Cravath Lake was created in the mid-1850s to provide motive power to a gristmill that was built on Whitewater Creek, and Trippe Lake was (recreated) in the mid-1860s to power a paper mill, nominally the first such mill in the State of Wisconsin. Early drawings of the area compiled by Kraege show watercraft such as sail boats and

<sup>4</sup>Wisconsin Department of Natural Resources Publication No. PUBL-WT-280-98-REV, op. cit.

<sup>5</sup>Fred G. Kraege, op. cit.; see also Prosper Cravath, Spencer Steele, and Albert Salisbury (editor), *Early Annals of Whitewater, 1837-1867, The Whitewater Federation of Women’s Clubs, 1906*; available in the Cornell University Library Digital Collection.

rowboats operating on these impounded waters.<sup>6</sup> In this regard, Kraege has documented several previous impoundments constructed in this area, which were subsequently washed out or destroyed, prior to the current dams being constructed. Kraege also notes an early record of Whitewater Creek being relatively shallow, with a depth of 2.5 feet where the then-Territorial Road crossed the Creek and merged with Main Street.

While the mills and factories that led to the establishment of the City of Whitewater and to the creation of the Lakes have faded into history, the Lakes have remained as a focal point of the City of Whitewater. In this regard, the functions of these waterbodies have gone from supporting the economic heart of the City to becoming a focal point for recreation and natural resources. In turn, this changing use has led to increasing concern for these waterbodies and efforts by the residents of the City of Whitewater to protect and improve their water quality.

## PURPOSE OF THIS PLAN

This report sets forth inventories of lake water quality and the aquatic plant communities present within Cravath and Trippe Lakes, and summarizes previous planning and monitoring programs conducted on the Lakes by the WDNR,<sup>7</sup> and the Southeastern Wisconsin Regional Planning Commission (SEWRPC).<sup>8</sup> These inventories were supplemented by field surveys conducted by SEWRPC, in cooperation with the City of Whitewater and University of Wisconsin-Whitewater, during August of 2008. The aquatic plant surveys were conducted by SEWRPC staff using the modified Jesson and Lound transect method developed by the WDNR.<sup>9</sup>

This report further represents part of the ongoing commitment of the City of Whitewater to sound planning with respect to the Lakes and is designed as part of a program of lake-related information gathering, evaluation, and lake management action planning process being undertaken by the City of Whitewater in cooperation with other governmental and nongovernmental organizations and agencies, including the WDNR, Walworth County, and SEWRPC.<sup>10</sup> In particular, the Cravath and Trippe Lakes communities participate in the University of Wisconsin-Extension (UWEX) Citizen Lake Monitoring Network (CLMN), formerly the WDNR Self-Help Monitoring Program, and the City of Whitewater maintains an ongoing program of lake management.

This planning program was funded, in part, through an NR 190 Lake Management Planning Grant administered by the WDNR and awarded to the City of Whitewater. The Lakes have adequate public recreational boating access pursuant to Chapter NR 1 of the *Wisconsin Administrative Code*.<sup>11</sup>

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<sup>6</sup>Ibid.

<sup>7</sup>*Wisconsin Department of Natural Resources Publication No. PUBL-WT-280-98-REV*, op. cit.

<sup>8</sup>*SEWRPC Planning Report No. 30, A Regional Water Quality Management Plan for Southeastern Wisconsin—2000, Volume Two, Alternative Plans, February 1979.*

<sup>9</sup>*R. Jesson, and R. Lound, Minnesota Department of Conservation Game Investigational Report No. 6, An Evaluation of a Survey Technique for Submerged Aquatic Plants, 1962.*

<sup>10</sup>*This planning program addresses Goal 2 of the nine City of Whitewater Goals forming the foundation for the City's Comprehensive Plan; namely, to "preserve our natural resources—including Whitewater Creek, the two lakes, and the Kettle Moraine—to support the strength of the economy, local quality of life, and the health of natural communities in and around Whitewater." See City of Whitewater, City of Whitewater Comprehensive Plan, 2030, February 2010.*

<sup>11</sup>*Wisconsin Department of Natural Resources Publication No. PUBL-FII-800 2005*, op. cit.

## LAKE PROTECTION PROGRAM GOALS AND OBJECTIVES

The lake protection goals and objectives for Cravath Lake and Trippe Lake were developed in consultation with the City of Whitewater and its *ad hoc* lakes committee. The agreed goals and objectives are to:

1. Protect and maintain public health, and promote public comfort, convenience, necessity, and welfare, in concert with the natural resource, through the environmentally sound management of native vegetation, fishes, and wildlife populations in and around Cravath Lake and Trippe Lake;
2. Effectively control the quantity and density of aquatic plant growths in portions of the Lakes' basins to better facilitate the conduct of water-related recreation, improve the aesthetic value of the resource to the community, and enhance the natural resource value of the waterbodies;
3. Effectively maintain the water quality of Cravath Lake and Trippe Lake to better facilitate the conduct of water-related recreation, improve the aesthetic value of the resource to the community, and enhance the resource value of the waterbodies; and,
4. Promote a quality, water-based experience for residents and visitors to Cravath Lake and Trippe Lake consistent with the policies and objectives of the WDNR as set forth in the regional water quality management plan.<sup>12</sup>

The inventory and aquatic plant management plan elements presented in this report conform to the requirements and standards set forth in the relevant *Wisconsin Administrative Codes*.<sup>13</sup> Implementation of the recommended actions set forth herein should continue to serve as an important step in achieving the stated lake use objectives over time.

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<sup>12</sup>SEWRPC Planning Report No. 30, *op. cit.*, as amended; see also SEWRPC Memorandum Report No. 93, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.

<sup>13</sup>This plan has been prepared pursuant to the standards and requirements set forth in the following chapters of the Wisconsin Administrative Code: Chapter NR 1, "Public Access Policy for Waterways;" Chapter NR 40, "Invasive Species Identification, Classification and Control;" Chapter NR 103, "Water Quality Standards for Wetlands;" Chapter NR 107, "Aquatic Plant Management;" and, Chapter NR 109, "Aquatic Plants Introduction, Manual Removal and Mechanical Control Regulations."

## Chapter II

# INVENTORY FINDINGS

### INTRODUCTION

The physical characteristics of a lake and its watershed are important factors in evaluating existing and likely future water quality conditions and their attendant lake and watershed uses, including recreational uses. Characteristics such as watershed topography, lake morphometry, and local hydrology ultimately influence water quality conditions and the composition of plant and fish communities within the lake. These characteristics, therefore, must be considered in the lake management planning process. Accordingly, this chapter provides pertinent information on the physical characteristics of Cravath and Trippe Lakes and their tributary areas, land use conditions, and chemical and biological environments, as well as past and present management practices and recreational uses and facilities as the basis for the lake protection plan set forth in Chapter V.

### WATERBODY CHARACTERISTICS

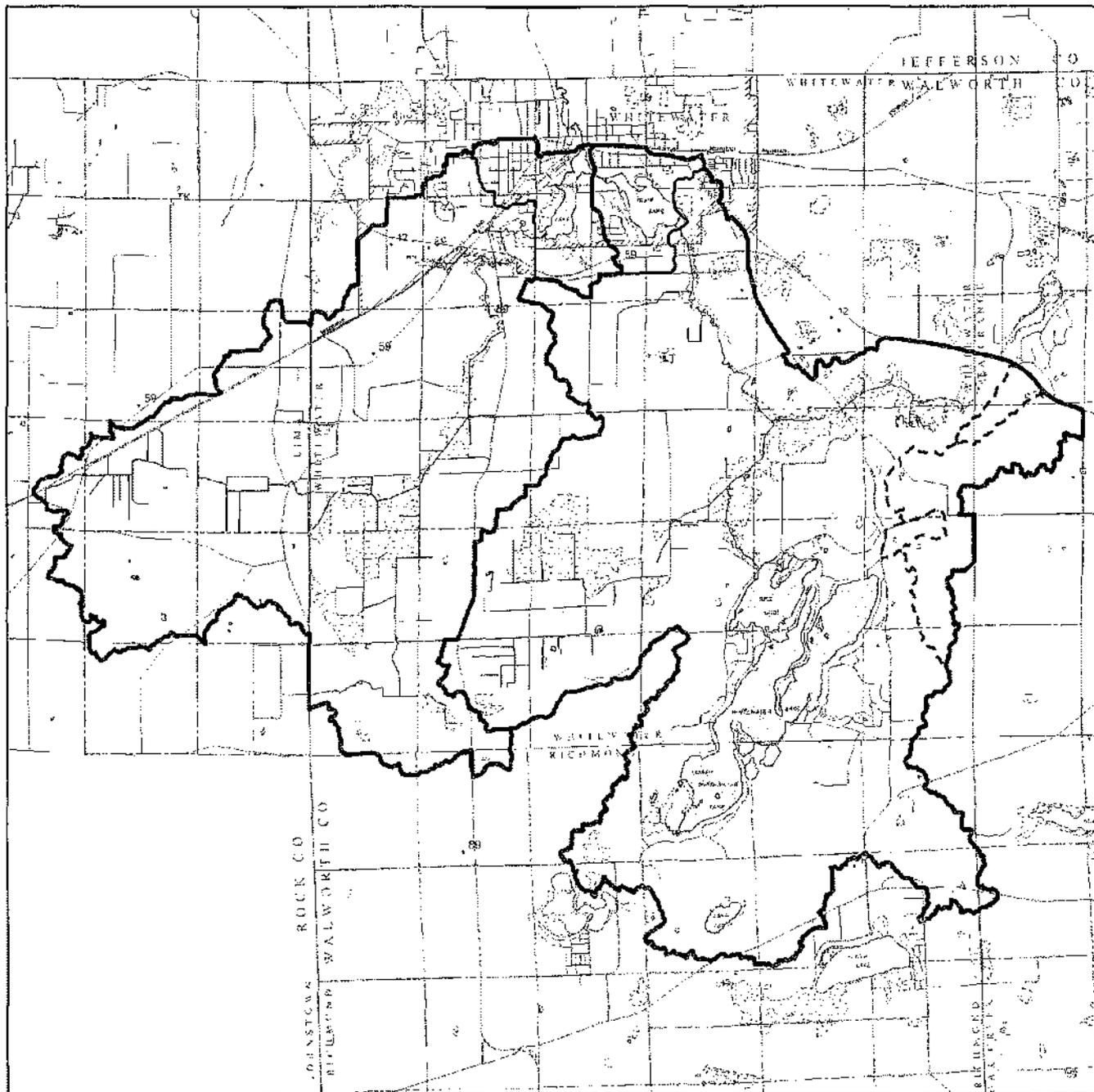
Cravath and Trippe Lakes are located in the City of Whitewater, Walworth County, Wisconsin, as shown on Map 1. The Wisconsin Department of Natural Resources (WDNR) has classified both lakes as drainage, or through-flow, lakes having a defined inflow and outflow. The Lakes depend principally on their inflowing streams, together with direct precipitation onto the lake surfaces, as their sources of water. Whitewater Creek flows into Trippe Lake from the southeast, while Spring Brook flows into Cravath Lake from the southwest. Water from Trippe Lake discharges through a short stretch of stream into Cravath Lake. Water levels in both lakes have been augmented by dams which control the outflows from the waterbodies to Whitewater Creek, a tributary stream to the Bark River.

Hydrographical characteristics of the Cravath-Trippe Lakes system are set forth in Table I. Cravath Lake consists of two shallow, natural basins, oriented in approximately a north-south direction; Trippe Lake has a single basin and is oriented in a northeast-southwest direction. Cravath Lake has a surface area of 68 acres, a volume of about 186 acre-feet, a maximum depth of 10 feet, and a mean depth of three feet. Trippe Lake has a surface area of 113 acres, a volume of 338 acre-feet, a maximum depth of eight feet, and a mean depth of approximately three feet. The bathymetries of the Lakes are shown on Maps 2 and 3.

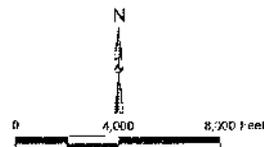
Cravath Lake and Trippe Lake are each nearly one mile in length and have shoreline lengths that are almost equal, at 2.8 miles and 2.7 miles, respectively. Cravath Lake has a shoreline development factor of 2.4, indicating that, due to its elongated shape, bays, and points, the shoreline is about two and one-half times longer than that of a perfectly circular lake of the same area. Trippe Lake has a shoreline development factor of 1.8, making it slightly

Map 1

LOCATION OF CRAVATH AND TRIPPE LAKES



- TOTAL TRIBUTARY AREA BOUNDARY
- DIRECT TRIBUTARY AREA BOUNDARY
- - - INTERNALLY DRAINED AREA BOUNDARY  
WHERE NOT COINCIDENT WITH THE  
WATERSHED OR SUBWATERSHED  
BOUNDARIES
- ☐ SURFACE WATER



Source: Rock County Land Information Office and SEWRPC.

Table 1

**HYDROLOGY AND MORPHOMETRY  
OF CRAVATH AND TRIPPE LAKES**

Parameter	Cravath Lake	Trippe Lake
<b>Size</b>		
Surface Area of Lake .....	68 acres	113 acres
Total Tributary Area .....	22,464	12,360
Lake Volume .....	186.5 acre-feet	338 acre-feet
Residence Time <sup>a</sup> .....	0.25	1.75
<b>Shape</b>		
Length of Lake .....	0.9 mile	0.9 mile
Width of Lake .....	0.2 mile	0.4 mile
Length of Shoreline .....	2.8 miles	2.7 miles
Shoreline Development Factor <sup>b</sup> .....	2.4	1.8
General Lake Orientation .....	N-S	SE-NW
<b>Depth</b>		
Mean Depth .....	3 feet	3 feet
Maximum Depth .....	10 feet	8 feet
Percentage of Lake Area		
Less than Three Feet .....	63	--
Greater than 20 Feet .....	0	0

<sup>a</sup>Water residence time is the time required for a volume of water equal to the volume of the lake to enter the waterbody.

<sup>b</sup>Shoreline development factor is the ratio of the shoreline length to the circumference of a circular lake of the same area.

Source: Wisconsin Department of Natural Resources, U.S. Geological Survey, and SEWRPC.

plant communities in the Lakes indicated that the bottom sediments of both Lakes are mainly comprised of silt and other soft materials. A preponderance of soft bottom sediments and the relative flatness of the lake bottom contours are conditions consistent with high levels of biological activity.

## TRIBUTARY AREA AND LAND USE CHARACTERISTICS

The Lakes and their direct tributary areas are situated in the northwestern corner of Walworth County. As shown on Map 4, the areas directly tributary to Cravath and Trippe Lakes are situated mostly within the City of Whitewater, with small portions of the tributary areas being situated in the Town of Whitewater, both in Walworth County. The area which drains directly to Cravath Lake is approximately 641 acres, or about one square mile, in areal extent; the area directly tributary to Trippe Lake is about 506 acres, or about 0.8 square mile.

The total drainage area tributary to the Lakes is significantly greater than their direct drainage areas. In the case of Trippe Lake, the tributary area includes the upstream portion of Whitewater Creek to its headwaters in Whitewater Lake. This approximately 12,524-acre, or 19.6-square-mile tributary area includes portions of the Towns of LaGrange, Richmond, Sugar Creek, and Whitewater, all in Walworth County. The total area tributary to Cravath Lake includes the area tributary to Trippe Lake as well as the upstream area tributary to Spring Brook. This tributary area totals about 22,464 acres, or 35.1 square miles, in areal extent, and encompasses portions of the Town of Whitewater, in Walworth County, and the Town of Lima, in Rock County.

<sup>1</sup>See SEWRPC Memorandum Report No. 174, An Aquatic Plant Management Plan for Pleasant Lake, Walworth County, Wisconsin, December 2009; and, SEWRPC Memorandum Report No. 143, An Aquatic Plant Management Plan for the Lauderdale Lakes, Walworth County, Wisconsin, August 2001.

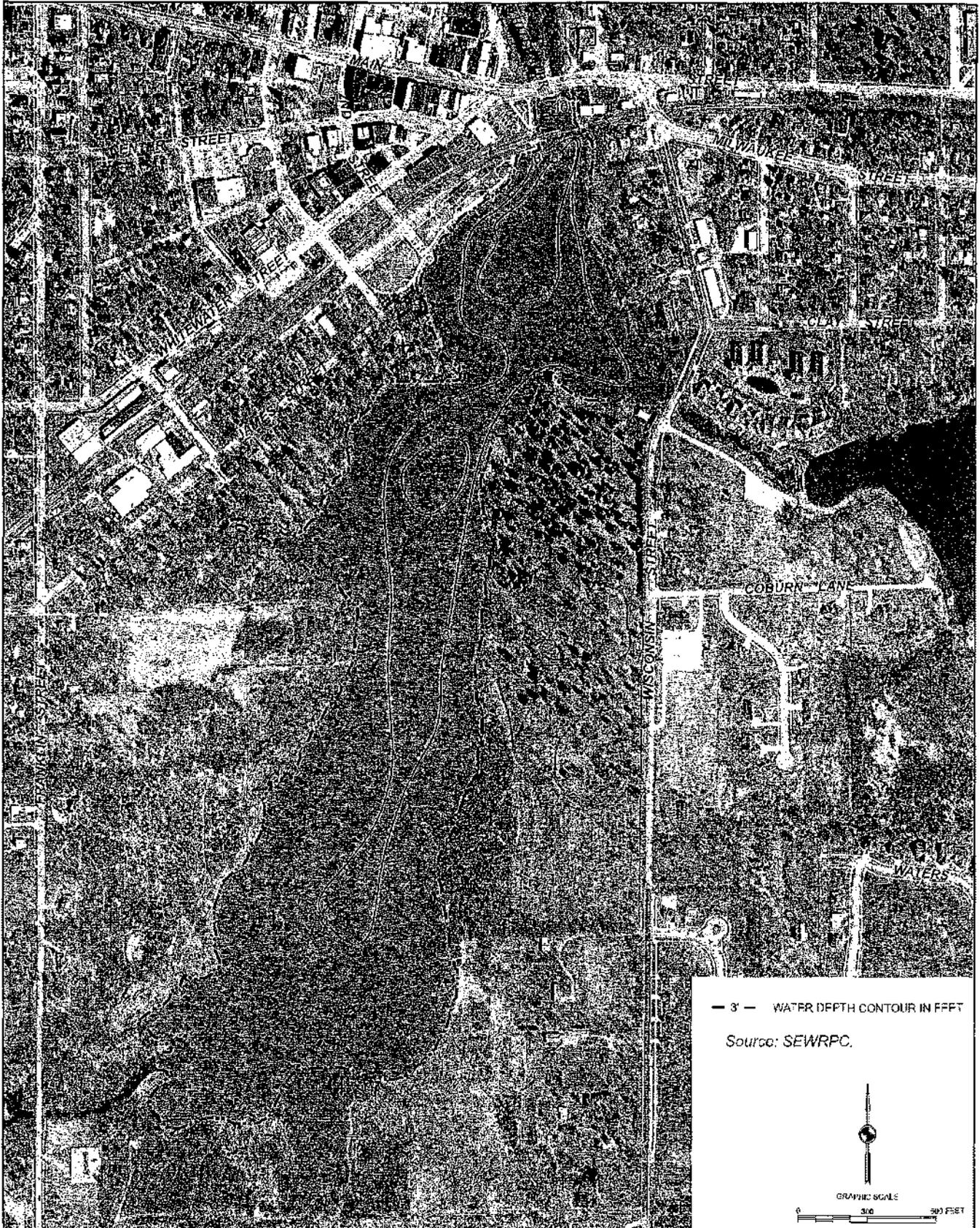
more circular in shape than Cravath Lake. In contrast, nearby Pleasant Lake in northeast Walworth County has a development factor of about 1.6, reflecting that Lake's more circular shape, while the Lauderdale Lakes have an overall shoreline development factor of 3.6, reflecting that waterbody's highly irregular shoreline.<sup>1</sup>

Shoreline development factor is often related to the level of biological activity in a lake; the greater a lake's shoreline development factor (due to greater shoreline contour irregularity), the greater is the likelihood that the lake contains shallow, nearshore areas and areas containing habitat suitable for plant and animal life. In other words, lakes with highly irregular shorelines usually provide more shallow-water, nearshore habitat areas (or "littoral zone") suitable for plant and animal life than more circular, deeper lakes.

Biological activity in a lake, in turn, can be influenced by the availability of such shoreline habitat as well as other physical factors, such as lake bottom sediment composition and lake-basin contours. As shown on Maps 2 and 3, both Cravath and Trippe Lakes are lakes with large expanses of shallow water containing areas with relatively flat lake bottom contours. Observations made during the 2008 surveys of the aquatic

Map 2

BATHYMETRIC MAP OF CRAVATH LAKE



Map 3

BATHYMETRIC MAP OF TRIPPE LAKE

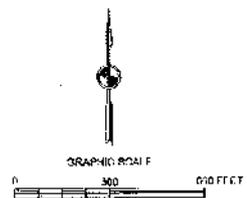


DATE OF PHOTOGRAPHY: APRIL 2006

— 4' — WATER DEPTH CONTOUR IN FEET

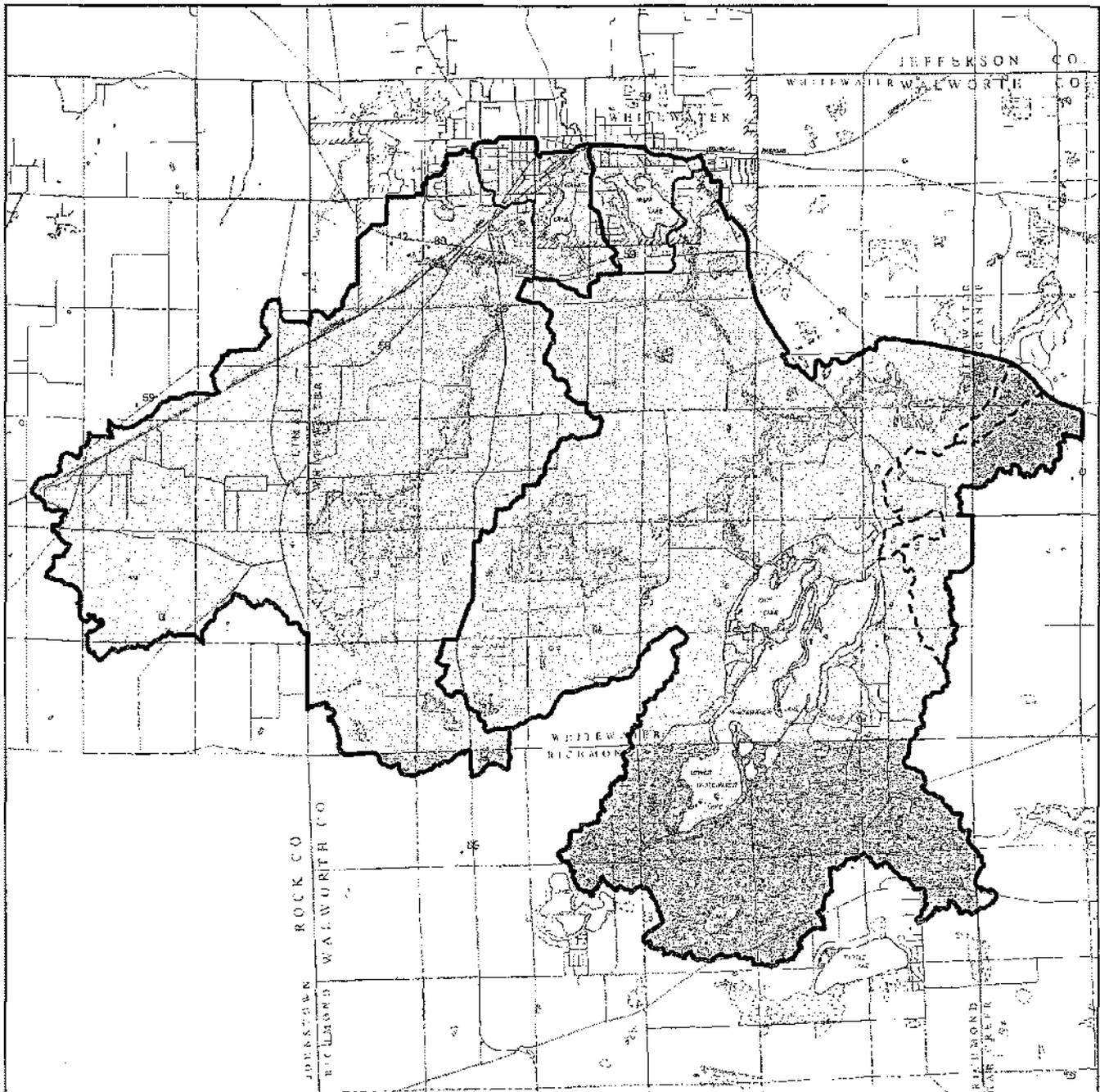
● MONITORING SITE

Source: U.S. Geological Survey and SEWRPC.

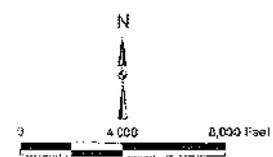


Map 4

CIVIL DIVISION BOUNDARIES WITHIN THE CRAVATH AND TRIPPE LAKES TOTAL TRIBUTARY AREA



-  City of Whitewater
-  Town of LaGrange
-  Town of Lima
-  Town of Richmond
-  Town of Sugar Creek
-  Town of Whitewater
-  Total Tributary Area Boundary
-  Direct Tributary Area Boundary
-  Internally Drained Area Boundary where not coincident with the Watershed or Subwatershed boundaries
-  Surface Water



Source: Rock County Land Information Office and SEWRPC.

Table 2

**POPULATION AND HOUSEHOLDS  
WITHIN THE AREA DIRECTLY TRIBUTARY  
TO CRAVATH LAKE: 1960-2000**

Year	Population	Households
1960	2,215	682
1970	2,581	711
1980	2,172	786
1990	2,342	829
2000	2,636	933

Source: U.S. Bureau of the Census and SEWRPC.

Table 3

**POPULATION AND HOUSEHOLDS  
WITHIN THE AREA DIRECTLY TRIBUTARY  
TO TRIPPE LAKE: 1960-2000**

Year	Population	Households
1960	819	190
1970	721	234
1980	698	264
1990	722	295
2000	815	318

Source: U.S. Bureau of the Census and SEWRPC.

### Population

Both the population and numbers of households within the areas tributary to Cravath and Trippe Lakes have generally increased since 1960. However, this increase has been sporadic and not altogether constant over this period, as shown in Tables 2 and 3. For example, although the numbers of households within the area directly tributary to Cravath Lake have increased fairly steadily between 1960 and 2000, as shown in Table 2, the population of the area actually decreased between 1970 and 1980 before resuming its upward trend. The greatest increase in population occurred between 1960 and 1970 when the numbers of people increased by nearly 17 percent, from 2,215 persons to 2,581 persons; the greatest increase in the numbers of households occurred between 1990 and 2000 when the numbers increased by just over 12 percent, from 829 to 933 households.

In the area directly tributary to Trippe Lake, as shown in Table 3, the changes in population and numbers of households were similar to those for Cravath Lake. However, there are several notable exceptions. First, the population in the area directly tributary to Trippe Lake decreased not only between 1970 and 1980, but also between 1960 and 1970, with the result that it was not until 2000 that the population in the tributary area to Trippe Lake recovered to its 1960 level. Further, while the numbers of households had evidenced a fairly steady increase from 1960 through 2000, similar to those around nearby Cravath Lake, the greatest increase in numbers of households in the tributary area occurred between 1960 and 1970. Subsequently, in contrast to the observations from the tributary area to Cravath Lake, the rate of increase in the numbers of households has steadily diminished from around 23 percent for the decade between 1960 and 1970, to about 13 percent over the decade between 1970 and 1980, to about 12 percent between 1980 and 1990, and to about 8 percent between 1990 and 2000. Thus, while the numbers of households in the area directly tributary to Trippe Lake have been increasing since 1960, the rate of increase has been steadily slowing.

The populations and numbers of households in the combined area tributary to both Cravath and Trippe Lakes are shown in Table 4. The population in this combined area generally increased from 1960 through 2000, although the drop in population between 1970 and 1980 observed in the areas directly tributary to the individual Lakes was also evidenced areawide, as would be expected. The numbers of households in the combined tributary area showed a fairly steady increase from 1960 through 2000, with the largest increase (about 21 percent) occurring from 1960 to 1970.

### Land Uses

As shown in Table 5, year 2000 land uses in the area directly tributary to Cravath Lake are about evenly distributed between urban and rural uses, with residential uses being the major urban use and agricultural uses being the chief rural use. In Table 6, year 2000 land uses in the area directly tributary to Trippe Lake remain mostly rural, with over 37 percent of the land in agriculture and only about 15 percent of the land in urban uses.

Table 4

**POPULATION AND HOUSEHOLDS  
WITHIN THE TOTAL AREA TRIBUTARY TO  
CRAVATH AND TRIPPE LAKES: 1960-2000**

Year	Population	Households
1960	4,862	1,338
1970	5,616	1,623
1980	5,210	1,901
1990	5,500	2,061
2000	6,304	2,428

NOTE: All areas approximated by whole U.S. Public Land Survey quarter section. Area in Rock County approximated by census blocks. Data above includes population and households located within internally drained portions of the total tributary area.

Source: U.S. Bureau of the Census and SEWRPC.

The year 2000 land uses within the total area tributary to Cravath and Trippe Lakes are primarily rural, with agricultural uses being the dominant rural land use. Although the majority of the urban lands are located in close proximity to the Lakes—primarily in the City of Whitewater, the shorelines of the Lakes are largely undeveloped, being comprised primarily of wetlands, parklands, and other open lands. This is a contrast to the highly developed residential shorelines common to most lakes in the Region, including the upstream Whitewater and Rice Lakes that form part of the total area tributary to the Cravath-Trippe Lake system. Map 5 shows the existing land uses within the combined tributary area of the Lakes as of 2000; those uses are tabulated in Table 7.

Future changes in land use within the direct and total areas tributary to Cravath and Trippe Lakes are likely to include limited further urban development, infilling of already platted lots, and possible redevelopment of

existing properties. Under proposed year 2035 conditions, as shown on Map 6 and summarized in Table 7, urban land uses in the total area tributary to the Lakes are expected to nearly double, from about 5 percent of the land coverage in 2000 to about 10 percent of the land coverage in 2035. These changes are projected to occur largely in the forms of single-family residential, multi-family residential, commercial, and industrial development in the areas near the Lakes, and mostly as the result of the conversion of agricultural and other open and unused lands. Agricultural uses are anticipated to decrease from about 65 percent of the land coverage in the year 2000, to about 56 percent of the land coverage under planned year 2035 conditions. These land use changes have the potential to modify the nature and delivery of nonpoint source contaminants to the Lakes, with concomitant impacts on the aquatic plant communities within the waterbody. In contrast, existing wetlands and woodlands are projected to be largely left intact with only slight loss of acreage from these uses.

## SHORELINE PROTECTION STRUCTURES

Erosion of shorelines results in the loss of land, damage to shoreline infrastructure, and interference with lake access and use. Wind-wave erosion, ice movement, and motorized boat traffic usually cause such erosion. A survey of the shoreline protection methods in use on Cravath and Trippe Lakes was conducted by Southeastern Wisconsin Regional Planning Commission (SEWRPC) staff during August of 2008. As shown on Map 7, the great majority of the shoreline of Cravath Lake was in a natural state, with a few short isolated stretches of riprap and bulkhead found primarily along the southern end of the Lake. Trippe Lake, as shown on Map 8, also had a shoreline mostly in a natural state, with a few isolated short stretches of riprap or bulkhead, mostly at the northwestern end of the Lake. In addition, there was one sand beach area present along the Trippe Lake shoreline, located in the City Park at the northwestern end of the Lake.

There were no obvious, serious erosion-related problems observed on either Cravath Lake or Trippe Lake. The majority of the shorelines were in a naturally vegetated state. This is consistent with requirements set forth in Chapter NR 328, shore erosion control structures in navigable waterways, and with the recommendations set forth in the SEWRPC publication, *Managing the Water's Edge: Making Natural Connections*.<sup>2</sup> These “soft” structures provide habitat, shelter, and food resources for a variety of terrestrial and aquatic wildlife as well as having visual amenity value for humans.

<sup>2</sup>See SEWRPC publication, *Managing the Water's Edge: Making Natural Connections*, May 2010; <http://www.scwrpc.org/SEWRPCFiles/Environment/RecentPublications/ManagingtheWatersEdge-brochure.pdf>.

Table 5

**EXISTING AND PLANNED LAND USE WITHIN THE AREA  
DIRECTLY TRIBUTARY TO CRAVATH LAKE: 2000 AND 2035**

Land Use Categories <sup>a</sup>	2000		2035	
	Acres	Percent of Tributary Area	Acres	Percent of Tributary Area
<b>Urban</b>				
Residential .....	174	27.1	230	36.0
Commercial .....	12	1.9	12	1.9
Industrial .....	10	1.6	29	4.5
Governmental and Institutional .....	46	7.2	50	7.8
Transportation, Communication, and Utilities .....	86	13.4	143	22.3
Recreational .....	3	0.5	6	0.9
Subtotal	331	51.7	470	73.4
<b>Rural</b>				
Agricultural and Other Open Lands .....	156	24.3	15	2.3
Wetlands .....	50	7.8	49	7.7
Woodlands .....	--	--	--	--
Surface Water .....	76	11.8	76	11.8
Extractive .....	28	4.4	31	4.8
Landfill .....	--	--	--	--
Subtotal	310	48.3	171	26.6
<b>Total</b>	<b>641</b>	<b>100.0</b>	<b>641</b>	<b>100.0</b>

<sup>a</sup>Parking included in associated use.

Source: SEWRPC.

## WATER QUALITY

Water quality data for Trippe Lake have been collected since 2004 under the auspices of the University of Wisconsin-Extension (UWEX) Citizen Lake Monitoring Network (CLMN), formerly known as the WDNR Self-Help Monitoring Program. Water quality data for Cravath Lake either have not been collected or were of such recent nature so as not to be available at the time this report was being prepared. Nevertheless, such water quality data as were available are summarized in Table 8. The sampling site location used for data collection on Trippe Lake is shown on Map 3.

### Water Clarity

Water clarity, or transparency, is often used as an indication of water quality. Transparency can be affected by physical factors—such as water color and suspended particles, and by various biological factors including seasonal variations in planktonic algal populations living in the lake. Water clarity is measured typically with a Secchi disk—a black-and-white, eight-inch-diameter disk—which is lowered into the water to a depth at which the disk is no longer visible. This depth is known as the “Secchi-disk reading.” The Secchi-disk reading can be related to the depth of light penetration into the water column of the lake. Light is one important component that sustains the growths of aquatic plants in lakes. Consequently, Secchi-disk measurements comprise an important part of the aforementioned UWEX CLMN program in which citizen volunteers assist in lake water quality monitoring efforts.

Table 6

**EXISTING AND PLANNED LAND USE WITHIN THE AREA  
DIRECTLY TRIBUTARY TO TRIPPE LAKE: 2000 AND 2035**

Land Use Categories <sup>a</sup>	2000		2035	
	Acres	Percent of Tributary Area	Acres	Percent of Tributary Area
<b>Urban</b>				
Residential .....	78	15.4	160	31.6
Commercial .....	22	4.3	26	5.1
Industrial .....	7	1.4	7	1.4
Governmental and institutional .....	2	0.4	5	1.0
Transportation, Communication, and Utilities .....	37	7.3	93	18.4
Recreational .....	6	1.2	51	10.1
Subtotal	152	30.0	342	67.6
<b>Rural</b>				
Agricultural and Other Open Lands .....	190	37.6	--	--
Wetlands .....	53	10.5	53	10.5
Woodlands .....	2	0.4	2	0.4
Surface Water .....	109	21.5	109	21.5
Extractive .....	--	--	--	--
Landfill .....	--	--	--	--
Subtotal	354	70.0	164	32.4
<b>Total</b>	<b>506</b>	<b>100.0</b>	<b>506</b>	<b>100.0</b>

<sup>a</sup>Parking included in associated use.

Source: SEWRPC.

### **Secchi-Disk Measurements**

As shown in Table 8, Secchi-disk measurements for 2004 and for 2006 through 2009 at the deep hole in Trippe Lake averaged 6.2 feet, indicative of generally fair water quality. The average Secchi-disk transparency reported by the WDNR for the Southeastern Wisconsin Region is 4.9 feet.<sup>3,4</sup> Since the water color at the sampling site was often reported as brown, yellow, or green, the Secchi-disk depths are likely to have been influenced by a combination of turbidity due to suspended solids and/or algae.

### **Satellite-Derived Water Clarity Estimates**

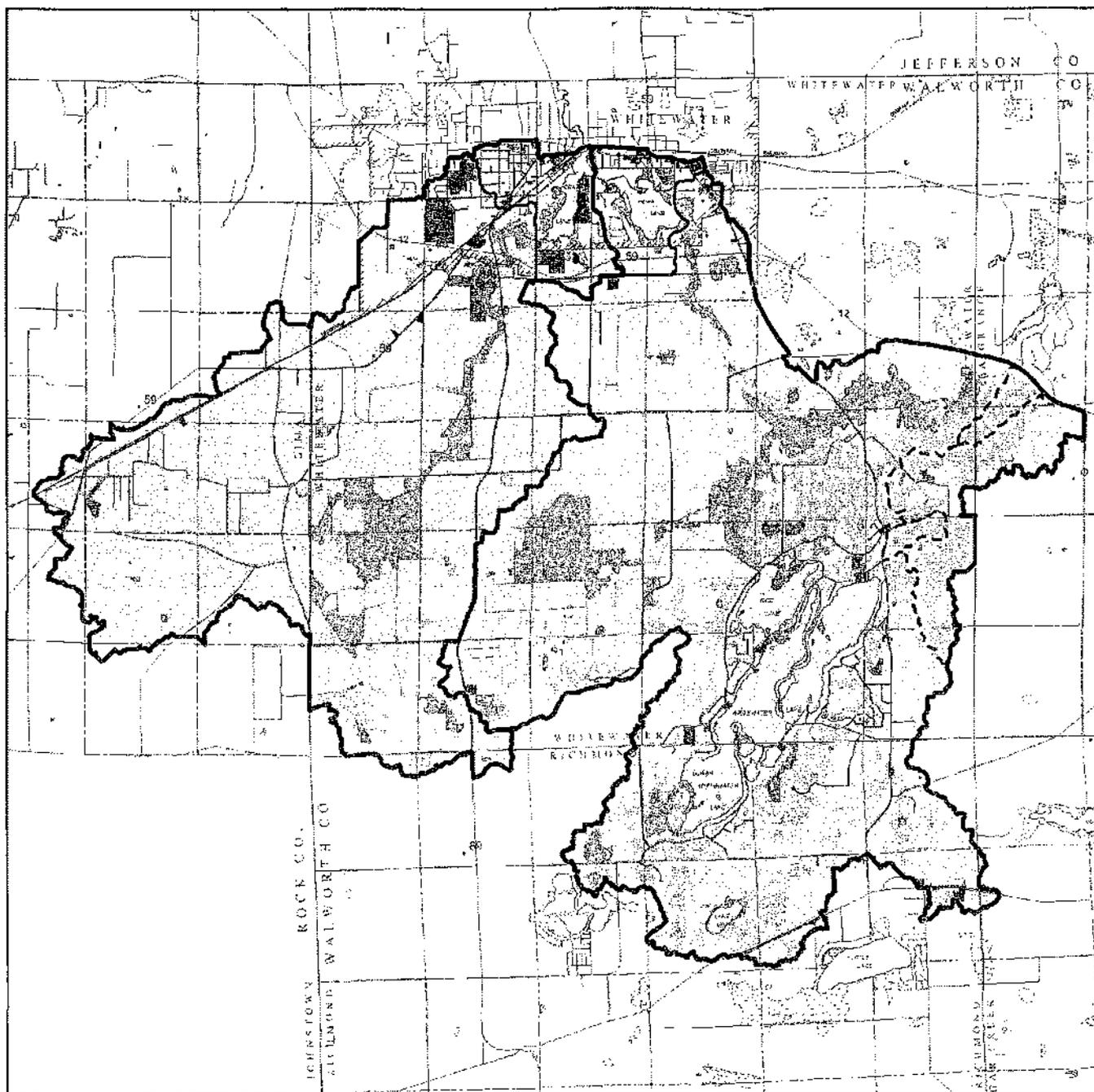
In addition to direct in-lake measurements of water clarity using a Secchi-disk, transparency in many Wisconsin lakes has been measured using remote sensing technology. The Environmental Remote Sensing Center (ERSC), established in 1970 at the University of Wisconsin-Madison, was one of the first remote sensing facilities in the

<sup>3</sup>R.A. Lillie and J.W. Mason, *Wisconsin Department of Natural Resources Technical Bulletin No. 138, Limnological Characteristics of Wisconsin Lakes, 1983.*

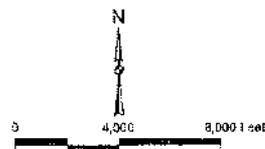
<sup>4</sup>Secchi-disk transparency was estimated using the relationship between phosphorus concentration and water clarity developed by the Organization for Economic Cooperation and Development, *Eutrophication of Waters: Monitoring, Assessment and Control, OECD, 1982*; using the forecast phosphorus concentration of 33.0 µg/l for Trippe Lake—see *Pollutants Loadings and Sources, below*—the annual average Secchi-disk transparency should be about 5.2 feet, which is consistent with the observed water clarity in that Lake.

Map 5

EXISTING LAND USE WITHIN THE CRAVATH AND TRIPPE LAKES TOTAL TRIBUTARY AREA: 2000



- |   |  |   |
|---|--|---|
| SINGLE-FAMILY RESIDENTIAL                     | RECREATIONAL                               | TOTAL TRIBUTARY AREA BOUNDARY   |
| MULTI-FAMILY RESIDENTIAL                      | WETLANDS                                   | DIRECT TRIBUTARY AREA BOUNDARY  |
| COMMERCIAL                                    | WOODLANDS                                  | INTERNALLY DRAINED AREA BOUNDARY WHERE NOT COINCIDENT WITH THE WATERSHED OR SUBWATERSHED BOUNDARIES |
| INDUSTRIAL                                    | SURFACE WATER                              |   |
| TRANSPORTATION, COMMUNICATIONS, AND UTILITIES | AGRICULTURAL, UNUSED, AND OTHER OPEN LANDS |   |
| GOVERNMENTAL AND INSTITUTIONAL                | EXTRACTIVE AND LANDFILL                    |   |



Source: Rock County Land Information Office and SEWRPC.

Table 7

**EXISTING AND PLANNED LAND USE WITHIN THE TOTAL  
AREA TRIBUTARY TO CRAVATH AND TRIPPE LAKES: 2000 AND 2035**

Land Use Categories <sup>a</sup>	2000		2035	
	Acres	Percent of Tributary Area	Acres	Percent of Tributary Area
<b>Urban</b>				
Residential.....	1,091	4.9	2,160	9.6
Commercial.....	72	0.3	262	1.2
Industrial.....	35	0.2	220	1.0
Governmental and Institutional.....	166	0.7	175	0.8
Transportation, Communication, and Utilities.....	790	3.5	1,355	6.0
Recreational.....	187	0.8	289	1.3
Subtotal	2,341	10.4	4,461	19.9
<b>Rural</b>				
Agricultural and Other Open Lands.....	14,585	64.9	12,475	55.6
Wetlands.....	1,901	8.5	1,889	8.4
Woodlands.....	2,460	11.0	2,445	10.9
Surface Water.....	1,134	5.0	1,134	5.0
Extractive.....	35	0.2	54	0.2
Landfill.....	8	<0.1	6	<0.1
Subtotal	20,123	89.6	18,003	80.1
<b>Total</b>	<b>22,464</b>	<b>100.0</b>	<b>22,464</b>	<b>100.0</b>

NOTE: Data above excludes internally drained portions of the total tributary area.

<sup>a</sup>Parking included in associated use.

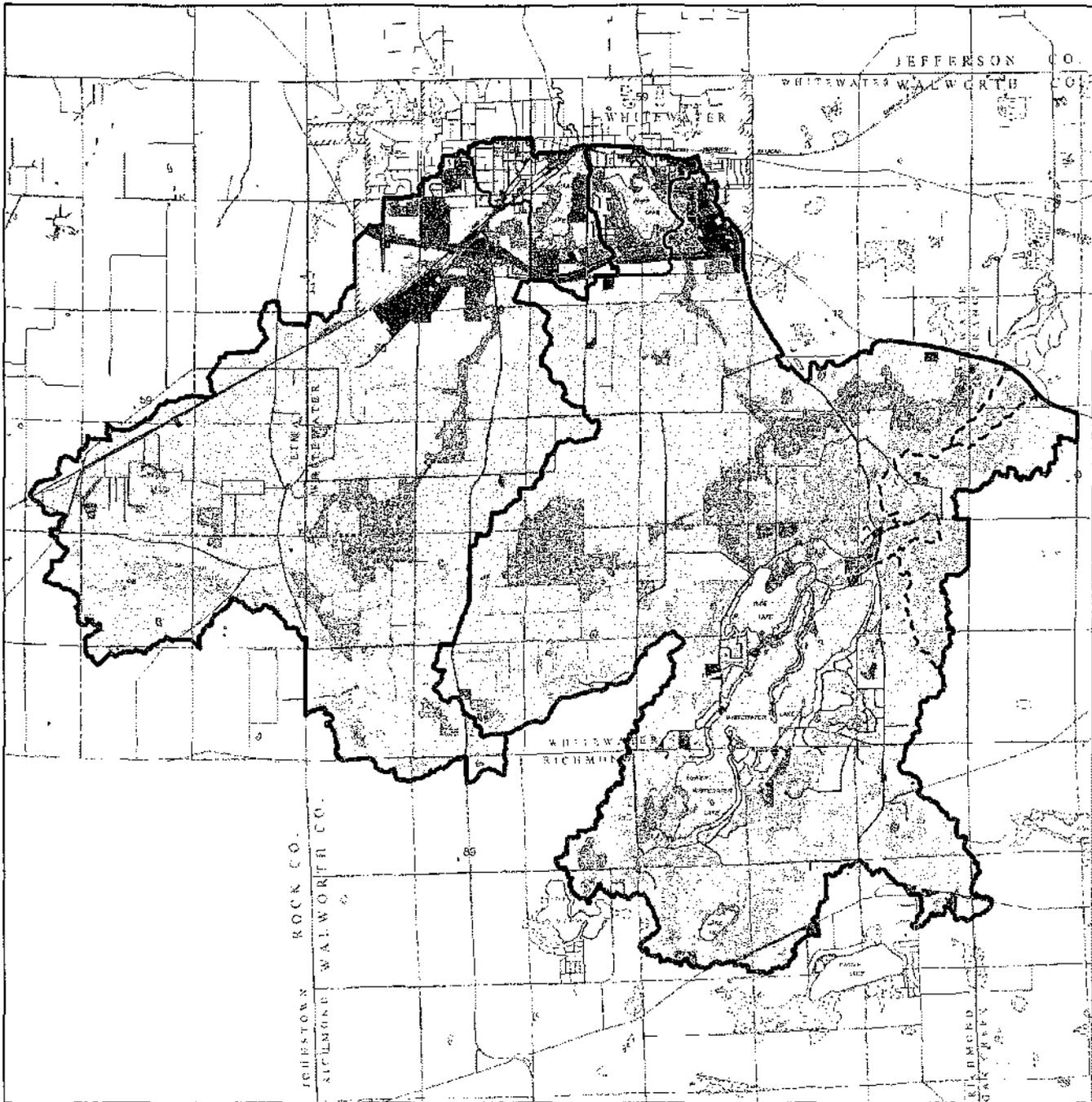
Source: SEWRPC.

United States. Using data gathered by satellite remote sensing over a three-year period, the ERSC generated a map based on a mosaic of satellite images showing the estimated water clarity of the largest 8,000 lakes in Wisconsin. The WDNR, through its volunteer Self-Help Monitoring Program (now the CLMN), was able to gather water clarity measurements from about 800 lakes, or about 10 percent of Wisconsin's largest lakes. Of these, the satellite remote sensing technology utilized by ERSC was able to accurately estimate clarity, providing a basis for extrapolating water clarity estimates to the remaining 90 percent of lakes. Measurements collected through ERSC remote sensing program from 1999 through 2005, estimated the average water clarity of Cravath Lake to be 2.6 feet, a value indicative of generally poor water quality. Trippe Lake was estimated to have average water clarity of 2.5 feet, also indicative of generally poor water quality. Such transparencies are substantially lower than the measured in-lake transparencies reported by the CLMN program. This would suggest that: (a) the water clarity of the lakes has improved in the years since the ERSC study, (b) the occurrence of interferences with the remote sensing instruments resulted in lower than expected water clarity estimates, or (c) observational "errors" such that the signals from Trippe and Cravath Lakes differ from those of the larger population of lakes included in the study, possibly related to the shallow natures of these impoundments.<sup>5</sup>

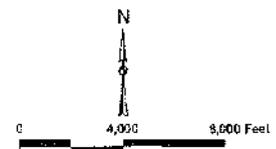
<sup>5</sup>The shallow nature of the impoundments could affect transparency estimates in a number of ways, including introduction of interference as a result of: sensors penetrating to the lake bottoms, impacts of wind-induced turbidity not experienced at the times that the volunteer observer recorded transparency readings, or the presence of rooted, emergent, or floating leaved aquatic plants appearing to the sensors as algae.

Map 6

PLANNED LAND USE WITHIN THE CRAVATH AND TRIPPE LAKES TOTAL TRIBUTARY AREA: 2035

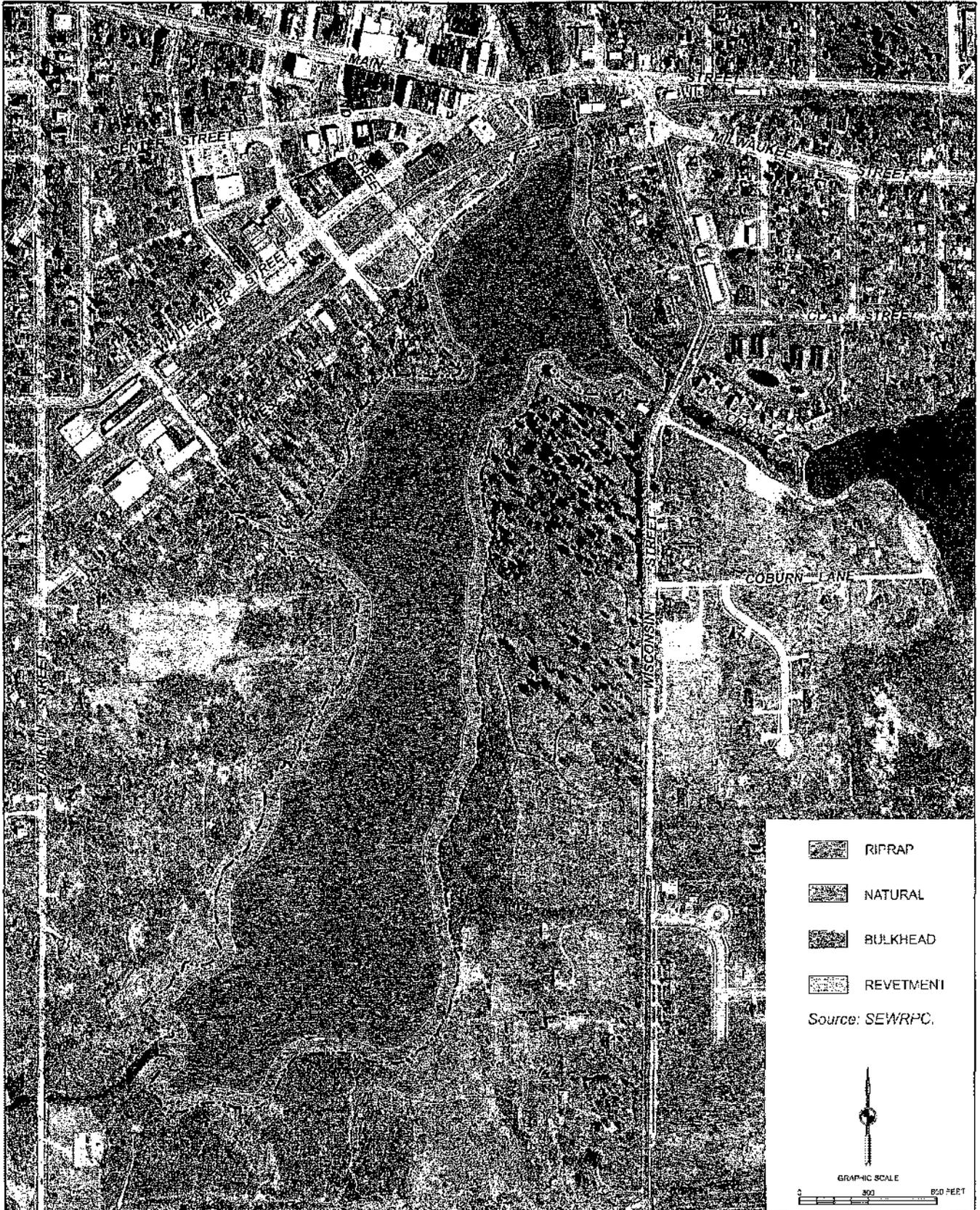


- |   |  |   |
|---|--|---|
|  SINGLE-FAMILY RESIDENTIAL                     |  RECREATIONAL                               |  TOTAL TRIBUTARY AREA BOUNDARY   |
|  MULTI-FAMILY RESIDENTIAL                      |  WETLANDS                                   |  DIRECT TRIBUTARY AREA BOUNDARY  |
|  COMMERCIAL                                    |  WOODLANDS                                  |  INTERNALLY DRAINED AREA BOUNDARY WHERE NOT COINCIDENT WITH THE WATERSHED OR SUBWATERSHED BOUNDARIES |
|  INDUSTRIAL                                    |  SURFACE WATER                              |   |
|  TRANSPORTATION, COMMUNICATIONS, AND UTILITIES |  AGRICULTURAL, UNUSED, AND OTHER OPEN LANDS |   |
|  GOVERNMENTAL AND INSTITUTIONAL                |  EXTRACTIVE AND LANDFILL                    |   |



Source: Rock County Land Information Office and SEWRPC.

SHORELINE PROTECTION STRUCTURES ON CRAVATH LAKE: 2008



SHORELINE PROTECTION STRUCTURES ON TRIPPE LAKE: 2008



DATE OF PHOTOGRAPHY: APRIL 2005

-  RIPRAP
-  BEACH
-  NATURAL
-  BULKHEAD
-  REVETMENT

Source: SEWRPC.

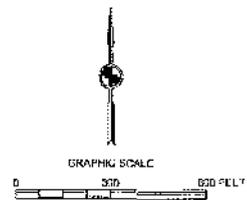


Table 8

## WATER CLARITY FOR TRIPPE LAKE: 2004-2010

Year	Secchi Mean (feet)	Secchi Range (feet)	Secchi Count
2004	6.6	6.6-6.6	1
2005	--	--	--
2006	6.5	6.5-6.5	1
2007	6.1	5.3-7.3	4
2008	5.7	5.0-6.0	3
2009	6.0	6.0-6.0	1
2010	6.0	3.5-7.5	9

Source: Wisconsin Department of Natural Resources and SEWRPC.

*Effects of Zebra Mussels*

With respect to changing in-lake conditions, a possible influence on water clarity in lakes in Southeastern Wisconsin is zebra mussels (*Dreissena polymorpha*). Zebra mussels are a nonnative species of shellfish that are having varied impacts on the inland lakes of the Upper Midwest as a result of their filter feeding proclivities. These impacts include the disruption of the food chain by removing significant amounts of bacteria and smaller phytoplankton which serve as food for larval and juvenile fishes and many forms of zooplankton; the resultant improvement of water clarity, in turn, can lead to increased growths of rooted aquatic plants, including Eurasian water milfoil. Zebra mussels also can alter the aquatic plant communities by attaching themselves to the stalks of the Eurasian water milfoil plants, dragging the stems out of the zone of light penetration due to the weight

of the zebra mussel shells, interfering with the competitive strategy of the Eurasian water milfoil plants. Such action contributes to improved growths of native aquatic plants or growths of filamentous algae too large to be ingested by the zebra mussels. To date, however, Cravath Lake and Trippe Lake are not listed by the WDNR as having established populations of these animals.<sup>6</sup>

*Effects of Wastewater Treatment Plant Upgrades*

Another possible influence on changing in-lake conditions would be the upgrading of the City of Whitewater wastewater treatment facility, as recommended in the Regional Water Quality Management Plan.<sup>7</sup> While the relocation, upgrading, or implementation of additional wastewater treatment practices within the drainage area tributary to the Lakes would be likely to have a profound effect on water quality and clarity, the City of Whitewater had commissioned the new plant in response to this recommendation during 1982,<sup>8</sup> and no further changes were indicated as being required of this plant in the then foreseeable future. Consequently, implementation of upgraded wastewater treatment processes is unlikely to account for the differences in water clarity noted between the CLMN measurements and ERSC observations.

By eliminating these factors—zebra mussels and changes in wastewater treatment practices, it is most likely that the differences between the ERSC observations and CLMN measurements are associated with the shallow nature of the impoundments and possible interferences due to the abundant growths of aquatic plants in the Lakes (see Aquatic Plants: Distribution and Management Areas, below).

<sup>6</sup>*Trippe and Cravath Lakes should continue to be monitored periodically for zebra mussel larvae or veligers. Regardless of the seeming beneficial impacts of these animals, the overall effect is that, as zebra mussels and other invasive species spread to inland lakes and rivers, they increase the environmental, aesthetic, and economic costs to water users.*

<sup>7</sup>*See SEWRPC Planning Report 30, A Regional Water Quality Management Plan for Southeastern Wisconsin—2000, Volume Three, Recommended Plan, June 1979.*

<sup>8</sup>*See SEWRPC Memorandum Report No. 93, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.*

## Dissolved Oxygen

Dissolved oxygen levels are one of the most critical factors affecting the living organisms of a lake ecosystem. Generally, dissolved oxygen levels are higher at the surface of a lake, where there is an interchange between the water and atmosphere, stirring by wind action, and production of oxygen by plant photosynthesis. Dissolved oxygen levels are usually lowest near the bottom of a lake, where decomposer organisms and chemical oxidation processes utilize oxygen in the decay process.

When a lake becomes stratified—that is, when a thermal gradient (called a “thermocline”) or chemical gradient (“chemocline”) of sufficient intensity produces a barrier separating upper waters, called the epilimnion, from lower waters, known as the hypolimnion—the surface supply of oxygen to the hypolimnion is cut off. Eventually, if there is not enough dissolved oxygen to meet the demands from the bottom dwelling aquatic life and decaying organic material, the dissolved oxygen levels in the bottom waters may be reduced to zero, a condition known as anoxia or anaerobiasis.

Where oxygen levels are depleted in the hypolimnion, fish tend to move upward, nearer to the surface of the lake, where higher dissolved oxygen concentrations exist. This migration, when combined with temperature, can select against some fish species that prefer the cooler water temperatures that generally prevail in the lower portions of the lakes. When there is insufficient oxygen at these depths, these fish are susceptible to summerkills, or, alternatively, are driven into the warmer water portions of the lake where their condition and competitive success may be severely impaired. Additionally, this condition, common to many shallow lakes in Wisconsin, can lead to winter fish kills if oxygen stores are not sufficient to meet the total demand.

Due to the generally shallow nature of Trippe Lake, as well as the thermal and dissolved oxygen profiles that have been recorded, it seems unlikely that Trippe Lake stratifies; if it stratifies at all, the Lake is likely to be weakly stratified with respect to both temperature and dissolved oxygen concentrations. In the case of Cravath Lake, the shallow nature of that impoundment would suggest that this lake is even less likely to stratify, even weakly. The available dissolved oxygen concentration data for these Lakes, limited to only a few measurements taken in Trippe Lake during 2004, 2008, and 2009, showed adequate dissolved oxygen concentrations near the surface of the Lake to a depth of three feet. Although dissolved oxygen concentrations generally decreased with depth, they did not drop below the 5.0 milligrams per liter (mg/l) level generally considered to be the minimum necessary to support fish and some other forms of aquatic life.

In addition to biological consequences, a lack of dissolved oxygen at depth can enhance the development of chemoclines, or chemical gradients, with an inverse relationship to the dissolved oxygen concentration. For example, the sediment-water exchange of elements, such as phosphorus, iron, and manganese, is increased under anaerobic conditions, resulting in increased hypolimnetic concentrations of these elements. Under anaerobic conditions, changes in iron and manganese oxidation states enable the release of phosphorus from the iron and manganese complexes to which they were bound under aerobic conditions. This “internal loading” can affect water quality significantly if these nutrients and salts are mixed into the epilimnion, especially during early summer, when these nutrients can become available for algal and rooted aquatic plant growth. Internal loading can occur during aerobic conditions, such as those observed in Trippe and Cravath Lakes. While there was fair agreement between predicted (33.0 µg/l) and observed (43.5 µg/l) levels of phosphorus in Trippe Lake,<sup>9</sup> the slightly higher observed concentration would suggest that other pollution sources, including internal, atmospheric, and groundwater, and onsite sewage disposal system sources outside of the City of Whitewater sewerage system, are likely to have contributed to the loading.

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<sup>9</sup>Forecast nutrient loads are based upon land uses in the drainage basin, and were predicted as an output from the Wisconsin Lake Model Spreadsheet (WiLMS); John C. Panuska and Jeff C. Kreider, Wisconsin Department of Natural Resources Publication No. PUBL-WR-363-94, Wisconsin Lake Modeling Suite Program Documentation and User's Manual, Version 3.3 for Windows, August 2002; phosphorus concentration was calculated using the shallow lakes and reservoir relationship described in Organization for Economic Cooperation and Development, op. cit.

### **Chlorophyll-*a***

Chlorophyll-*a* is the major photosynthetic ("green") pigment in algae. The amount of chlorophyll-*a* present in the water is an indication of the biomass or amount of algae in the water. The mean chlorophyll-*a* concentration for lakes in the southeastern Wisconsin region is about 43 micrograms per liter ( $\mu\text{g/l}$ ), with a median concentration of about 10  $\mu\text{g/l}$ .<sup>10</sup> Chlorophyll-*a* levels above about 10  $\mu\text{g/l}$  generally result in a green coloration of the water that may be severe enough to impair recreational activities, such as swimming or waterskiing.<sup>11</sup>

For Trippe and Cravath Lakes, data on chlorophyll-*a* concentrations are extremely limited: there was one measurement taken from Trippe Lake during June of 2008 and two additional measurements taken during the summer of 2009. These samples indicated low levels of chlorophyll-*a* in the Lakes, that ranged from 3  $\mu\text{g/l}$  to 6  $\mu\text{g/l}$ . These concentrations are significantly less than the regional average, and well below the level of 10  $\mu\text{g/l}$  which, as mentioned, is the level above which some recreational activities may be impaired. These values, however, are consistent with the predicted total phosphorus concentration for Trippe Lake—the predicted total phosphorus concentration of 33.0  $\mu\text{g/l}$ , when used in the phosphorus-chlorophyll concentration relationship developed by the Organization for Economic Cooperation and Development (OECD),<sup>12</sup> yields an annual average chlorophyll-*a* concentration of about 6.6  $\mu\text{g/l}$ . It is possible that the lower observed chlorophyll-*a* concentrations reflect the competition for nutrients between rooted aquatic macrophytes and the free-floating phytoplankton as well as possible shading of the water column by the rooted plants.

### **Nutrient Characteristics**

Aquatic plants and algae require nutrients such as phosphorus and nitrogen for growth. In hard-water alkaline lakes, most of these nutrients are generally found in concentrations that exceed the needs of growing plants. However, in lakes where the supply of one or more of these nutrients is limited, plant growth is limited by the amount of the nutrient that is available in the least quantity relative to the others. The ratio of total nitrogen (N) to total phosphorus (P) in lake water (the N:P ratio) indicates which nutrient is most likely to be limiting aquatic plant growth in a lake.<sup>13</sup> Where the N:P ratio is greater than 14:1, phosphorus is most likely to be the limiting nutrient. If the ratio is less than 10:1, nitrogen is most likely to be the limiting nutrient. Because data for total nitrogen are lacking for the Cravath-Trippe Lake system, it was not possible to evaluate the N:P ratios in these Lakes. However, because of the availability of nitrogen from the atmosphere, most freshwater inland lakes are phosphorus limited, meaning that the addition of phosphorus to these lakes would be likely to result in increased growths of aquatic plants.

Total phosphorus concentrations include phosphorus contained in plant and animal fragments suspended in the lake water, phosphorus bound to sediment particles, and phosphorus dissolved in the water column. Total phosphorus is, therefore, usually considered a good indicator of nutrient status in a lake. For lakes, the guideline value set forth in the adopted regional water quality management plan is 20  $\mu\text{g/l}$  of total phosphorus or less during spring turnover. This is the level considered as necessary to limit algal and aquatic plant growths to levels

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<sup>10</sup>Ibid.

<sup>11</sup>J.R. Vallentyne, 1969 "The Process of Eutrophication and Criteria for Trophic State Determination." in *Modeling the Eutrophication Process—Proceedings of a Workshop at St. Petersburg, Florida, November 19-21, 1969*, pp. 57-67.

<sup>12</sup>Organization for Economic Cooperation and Development, op. cit.

<sup>13</sup>M.O. Allum, R.E. Gessner, and T.H. Gakstatter, U.S. Environmental Protection Agency Working Paper No. 900, *An Evaluation of the National Eutrophication Data, 1976*.

consistent with recreational water use objectives, as well as with water use objectives aimed at maintaining a warmwater fishery and other aquatic life.<sup>14</sup>

During 2008 and 2009, the summer average total phosphorus concentrations in Trippe Lake were 43.5 µg/l. These concentrations exceed both the Regional guideline value and the action level established in the *Wisconsin Administrative Code*, suggesting that Trippe Lake is capable of supporting abundant growths of aquatic plants. Given the similarities in water clarity between the two Lakes, it is likely that Cravath Lake also has phosphorus concentrations that exceed the State and Regional guidelines.

Seasonal gradients of phosphorus concentrations between the epilimnion and hypolimnion of a lake reflect the biogeochemistry of this growth element. When aquatic organisms die, they usually sink to the bottom of the lake, where they are decomposed. Phosphorus from these organisms is then either stored in the bottom sediments or rereleased into the water column. Because phosphorus is not highly soluble in water, it readily forms insoluble precipitates with calcium, iron, and aluminum under aerobic conditions and accumulates, predominantly, in the lake sediments. As noted above, should the bottom waters of a lake become depleted of oxygen during stratification, certain chemical changes occur such that phosphorus becomes soluble and is more readily released from the sediments in a process known as internal loading. However, based upon the few available data for both phosphorus and dissolved oxygen concentrations in Trippe and Cravath Lakes, the output of the modeled total phosphorus concentration in Trippe Lake, and the shallow nature of the two impoundments, it is likely that internal loading, while not a major concern, does contribute some phosphorus to the water columns of the Lakes. This conclusion is substantiated by the fact that the observed phosphorus concentration (43.5 µg/l), while greater than the most likely phosphorus concentration (33.0 µg/l), was less than the highest likely phosphorus concentration (85.0 µg/l) predicted by the WILMS model.<sup>15</sup>

## POLLUTION LOADINGS AND SOURCES

Pollutant loads to a lake are generated by various natural processes and human activities that take place in the area tributary to a lake. These loads are transported to the lake through the atmosphere, across the land surface, and by way of inflowing streams. Pollutants transported by the atmosphere are deposited onto the surface of the lake as dry fallout and direct precipitation. Pollutants transported across the land surface enter the lake directly as surface runoff and, indirectly, as groundwater inflows, including drainage from onsite wastewater treatment systems. Pollutants transported by streams also enter a lake as surface water inflows.

In drainage lakes, such as the Cravath-Trippe Lake system, pollutant loads transported by inflowing streams, by precipitation falling directly onto the Lakes' surfaces, and runoff from the tributary areas immediately surrounding the Lakes, in the absence of identifiable or point source discharges from industries or wastewater treatment facilities, comprise the principal routes by which contaminants enter the waterbodies.<sup>16</sup> Currently, there are no

<sup>14</sup>The Natural Resources Board of the State of Wisconsin, acting at their June 2010 Board Meeting adopted Board Order WT-25-08, which set forth revisions to Chapters NR 102 and NR 217 of the Wisconsin Administrative Code related to phosphorus water quality standards criteria and WPDES permit provisions for phosphorus. Pursuant to Section NR 102.06, an action level of 40 µg/l of total phosphorus was adopted for shallow lakes and reservoirs as the level above which water quality concerns are likely to arise.

<sup>15</sup>John C. Pamuska and Jeff C. Kreider, *Wisconsin Department of Natural Resources Publication No. PUBL-WR-363-94*, op. cit.

<sup>16</sup>Sven-Olof Ryding and Walter Rast, *The Control of Eutrophication of Lakes and Reservoirs, Unesco Man and the Biosphere Series, Volume 1, Parthenon Press, Carnforth, 1989*; Jeffrey A. Thornton, Walter Rast, Marjorie M. Holland, Geza Jolankai, and Sven-Olof Ryding, *The Assessment and Control of Nonpoint Source Pollution of Aquatic Ecosystems, Unesco Man and the Biosphere Series, Volume 23, Parthenon Press, Carnforth, 1999*.

significant point source discharges of pollutants into Cravath and Trippe Lakes. For this reason, the discussion that follows is based upon nonpoint source pollutant loadings to the Lakes.

Nonpoint sources of water pollution include urban sources, such as runoff from residential, commercial, transportation, construction, and recreational activities; and rural sources, such as runoff from agricultural lands and onsite sewage disposal systems.

Nonpoint source phosphorus, suspended solids, and urban-derived metals inputs to Cravath and Trippe Lakes were estimated using the WILMS version 3.0,<sup>17</sup> and the unit area load-based models developed for use within the Southeastern Wisconsin Region.<sup>18</sup> It should be noted that, with respect to the estimated phosphorus loads, the promulgation of Section 94.643 of the *Wisconsin Statutes* during 2009, limiting the use and sale of fertilizers containing phosphorus, should reduce the loads from urban areas below the loads forecast using the WILMS and unit area load models.

### Sediment Loadings

#### *Cravath Lake*

The estimated sediment loadings to Cravath Lake from its direct tributary area under existing year 2000 and planned year 2035 conditions and as set forth in the adopted regional land use plan<sup>19</sup> are shown in Table 9. A total annual sediment loading of 71.0 tons was estimated to be contributed to Cravath Lake from its direct tributary area under year 2000 conditions, as shown in Table 9. Of the likely annual sediment load, it was estimated that about 42.3 tons per year, or about 60 percent of the total loading, were contributed by runoff from rural lands, mostly from agricultural sources, and 22.4 tons, or about 31 percent, contributed by urban lands. Approximately 6.3 tons, or about 9 percent of the annual sediment load, were contributed by atmospheric deposition onto the lake surface.

Under 2035 conditions, the annual sediment load to the Lake from its direct tributary area is anticipated to diminish as a result of conversion of agricultural lands to urban land uses. The most likely annual sediment load to the Lake under buildout conditions is estimated to be about 42.1 tons. Of the forecast sediment load anticipated for Cravath Lake, about 3.6 tons of sediment are estimated to be contributed to the Lake from rural sources and 31.4 tons from urban sources. Approximately 7.1 tons of sediment per year are estimated to continue to be contributed by direct precipitation onto the lake surface.

Table 10 shows the estimated sediment loadings to Cravath Lake from its total tributary area under existing year 2000 conditions. A total annual sediment loading of 3,371.0 tons was estimated to be contributed to Cravath Lake from its total tributary area under year 2000 conditions. Of the likely annual sediment load, it was estimated that 3,175.1 tons per year, or about 94 percent of the total loading, were contributed by runoff from rural lands, mostly from agricultural sources, and 105.6 tons, or about 3 percent, contributed by urban lands. Approximately 90.3 tons, or about 3 percent of the annual sediment load, were contributed by atmospheric deposition onto the lake surface. Under 2035 conditions, the annual sediment load to the Lake from its total tributary area is anticipated to diminish.

<sup>17</sup> John C. Panuska and Jeff C. Kreider, *Wisconsin Department of Natural Resources Publication No. PUBL-WR-363-94*, op. cit.

<sup>18</sup> SEWRPC Planning Report No. 30, *A Regional Water Quality Management Plan for Southeastern Wisconsin: 2000, Volume One, Inventory Findings, September 1978; Volume Two, Alternative Plans, February 1979; and Volume Three, Recommended Plan, June 1979.*

<sup>19</sup> SEWRPC Planning Report No. 48, *A Regional Land Use Plan for Southeastern Wisconsin: 2035, June 2006.*

Table 9

**ESTIMATED ANNUAL POLLUTANT LOADINGS BY LAND USE CATEGORY  
WITHIN THE AREA DIRECTLY TRIBUTARY TO CRAVATH LAKE: 2000 AND 2035**

Land Use Category	Pollutant Loads: 2000			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	1.7	34.8	0.0	1.6
Commercial .....	4.7	14.4	2.6	3.0
Industrial .....	3.8	11.7	2.2	1.5
Governmental .....	11.7	62.1	3.2	24.8
Transportation .....	0.4	9.5	0.0	0.0
Recreational .....	<0.1	0.8	0.0	0.0
Subtotal	22.4	133.3	8.0	30.9
<b>Rural</b>				
Agricultural .....	35.1	134.1	--	--
Wetlands .....	0.1	2.0	--	--
Woodlands .....	--	--	--	--
Water .....	7.1	9.9	--	--
Extractive .....	6.3	24.1	--	--
Subtotal	48.6	170.1	--	--
<b>Total</b>	<b>71.0</b>	<b>303.4</b>	<b>8.0</b>	<b>30.9</b>

Land Use Category	Pollutant Loads: 2035			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	2.2	46.0	0.0	1.6
Commercial .....	4.7	14.4	2.6	3.0
Industrial .....	10.9	33.9	6.4	1.5
Governmental .....	12.8	67.5	3.5	24.8
Transportation .....	0.7	15.7	0.0	0.0
Recreational .....	<0.1	1.6	0.0	0.0
Subtotal	31.4	179.0	12.5	30.9
<b>Rural</b>				
Agricultural .....	3.4	12.9	--	--
Wetlands .....	0.1	2.0	--	--
Woodlands .....	--	--	--	--
Water .....	7.1	9.9	--	--
Extractive .....	0.1	3.4	--	--
Subtotal	10.7	28.2	--	--
<b>Total</b>	<b>42.1</b>	<b>207.2</b>	<b>12.5</b>	<b>30.9</b>

Source: SEWRPC.

### *Trippe Lake*

The estimated sediment loadings to Trippe Lake from its direct tributary area under existing year 2000 and planned year 2035 conditions as set forth in the adopted regional land use plan<sup>20</sup> are shown in Table 11. A total annual sediment loading of 65.9 tons was estimated to be contributed to Trippe Lake from its direct tributary area under year 2000 conditions. Of the likely annual sediment load, it was estimated that 43.0 tons per year, or about 65 percent of the total loading, were contributed by runoff from rural lands, mostly from agricultural sources, and

<sup>20</sup>Ibid.

Table 10

**ESTIMATED ANNUAL POLLUTANT LOADINGS BY LAND USE CATEGORY  
WITHIN THE TOTAL AREA TRIBUTARY TO CRAVATH LAKE: 2000**

Land Use Category	Pollutant Loads: 2000			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	8.9	182.0	0.0	1.5
Commercial .....	8.5	26.0	4.8	3.0
Industrial .....	20.9	65.0	12.2	1.5
Governmental .....	38.0	201.2	10.5	24.8
Transportation .....	27.2	54.5	118.9	0.0
Recreational .....	2.1	47.4	0.0	0.0
Subtotal	105.6	576.1	146.4	30.8
<b>Rural</b>				
Agricultural .....	3,165.5	12,100.0	--	--
Wetlands .....	3.0	64.3	--	--
Woodlands .....	4.2	90.0	--	--
Water .....	90.3	124.7	--	--
Extractive .....	2.4	55.2	--	--
Subtotal	3,265.4	12,434.2	--	--
<b>Total</b>	<b>3,371.0</b>	<b>13,010.3</b>	<b>146.4</b>	<b>30.8</b>

Source: SEWRPC.

12.7 tons, or about 19 percent, contributed by urban lands. Approximately 10.2 tons, or about 16 percent of the annual sediment load, were contributed by atmospheric deposition onto the lake surface.

Under 2035 conditions, the annual sediment load to the Lake from its total tributary area is anticipated to diminish as a result of the conversion of agricultural lands to urban land uses. The most likely annual sediment load to the Lake under buildout conditions is estimated to be 27.0 tons. Of the forecast sediment load anticipated for Trippe Lake, about 0.2 ton of sediment is estimated to be contributed to the Lake from rural sources. Urban sources are expected to contribute the majority of the sediment, estimated at about 16.6 tons per year. Approximately 10.2 tons of sediment per year are estimated to continue to be contributed by direct precipitation onto the lake surface.

Table 12 shows the estimated sediment loadings to Trippe Lake from its total tributary area under existing year 2000 conditions. A total annual sediment loading of about 1,671.9 tons was estimated to be contributed to Trippe Lake from its total tributary area under year 2000 conditions. Of the likely annual sediment load, it was estimated that 1,548.3 tons per year, or about 93 percent of the total loading, were contributed by runoff from rural lands, mostly from agricultural sources, and 33.6 tons, or about 2 percent, contributed by urban lands. Approximately 90.0 tons, or about 5 percent of the annual sediment load, were contributed by atmospheric deposition onto the lake surface. Under 2035 conditions, the annual sediment load to the Lake from its total tributary area is anticipated to diminish.

### Phosphorus Loadings

#### *Cravath Lake*

As shown in Table 9, existing year 2000 phosphorus loads to Cravath Lake from its direct tributary area were identified and quantified using SEWRPC land use inventory data.<sup>21</sup> It was estimated that, under year 2000

<sup>21</sup>Ibid.

Table 11

**ESTIMATED ANNUAL POLLUTANT LOADINGS BY LAND USE CATEGORY  
WITHIN THE AREA DIRECTLY TRIBUTARY TO TRIPPE LAKE: 2000 AND 2035**

Land Use Category	Pollutant Loads: 2000			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	0.7	15.6	0.0	1.6
Commercial .....	8.6	26.4	4.8	3.0
Industrial .....	2.6	8.2	1.5	1.5
Governmental .....	0.5	2.7	0.1	24.8
Transportation .....	0.2	4.1	0.0	0.0
Recreational .....	<0.1	1.6	0.0	0.0
Subtotal	12.7	58.6	6.4	30.9
<b>Rural</b>				
Agricultural .....	42.8	163.4	--	--
Wetlands .....	0.1	2.1	--	--
Woodlands .....	<0.1	0.1	--	--
Water .....	10.2	14.2	--	--
Extractive .....	--	--	--	--
Subtotal	53.2	179.8	--	--
<b>Total</b>	<b>65.9</b>	<b>238.4</b>	<b>6.4</b>	<b>30.9</b>

Land Use Category	Pollutant Loads: 2035			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	1.6	32.0	0.0	1.6
Commercial .....	10.1	31.2	5.7	3.0
Industrial .....	2.6	8.2	1.5	1.5
Governmental .....	1.3	6.7	0.3	24.8
Transportation .....	0.4	10.2	0.0	0.0
Recreational .....	0.6	13.8	0.0	0.0
Subtotal	16.6	102.1	7.5	30.9
<b>Rural</b>				
Agricultural .....	0.0	0.0	--	--
Wetlands .....	0.1	2.1	--	--
Woodlands .....	<0.1	0.1	--	--
Water .....	10.2	14.2	--	--
Extractive .....	--	--	--	--
Subtotal	10.4	16.4	--	--
<b>Total</b>	<b>27.0</b>	<b>118.5</b>	<b>7.5</b>	<b>30.9</b>

Source: SEWRPC.

conditions, the total phosphorus load to Cravath Lake from its direct tributary area was 303 pounds. Of the annual total phosphorus load, it was estimated that 160 pounds per year, or about 53 percent of the total loading, were contributed by runoff from rural lands, mostly agricultural, and 133 pounds per year, or about 44 percent, were contributed by runoff from urban lands, mostly from residential sources. About 10 pounds, or about 3 percent, were contributed by direct precipitation onto the lake surface.

Table 12

**ESTIMATED ANNUAL POLLUTANT LOADINGS BY LAND USE CATEGORY  
WITHIN THE TOTAL AREA TRIBUTARY TO TRIPPE LAKE: 2000**

Land Use Category	Pollutant Loads: 2000			
	Sediment (tons)	Phosphorus (pounds)	Copper (pounds)	Zinc (pounds)
<b>Urban</b>				
Residential .....	6.8	139.2	0.0	1.5
Commercial .....	5.1	15.6	2.9	3.0
Industrial .....	5.2	16.4	3.0	1.5
Governmental .....	3.5	18.9	1.0	24.8
Transportation .....	12.0	24.0	52.3	0.0
Recreational .....	1.0	24.6	0.0	0.0
Subtotal	33.6	238.7	59.2	30.8
<b>Rural</b>				
Agricultural .....	1,539.2	5,883.2	--	--
Wetlands .....	1.8	39.4	--	--
Woodlands .....	3.7	83.0	--	--
Water .....	90.0	124.5	--	--
Extractive .....	3.6	50.2	--	--
Subtotal	1,638.3	6,180.3	--	--
<b>Total</b>	<b>1,671.9</b>	<b>6,419.0</b>	<b>59.2</b>	<b>30.8</b>

Source: SEWRPC.

Table 9 also shows the estimated phosphorus loads to Cravath Lake from its direct tributary area under planned year 2035 conditions. Under 2035 conditions, the annual total phosphorus load to the Lake is anticipated to diminish as agricultural activities within the area directly tributary to Cravath Lake are replaced by urban residential land uses. The most likely annual total phosphorus load to the Lake under the planned conditions is estimated to be 207 pounds. Of the total annual forecast phosphorus load of phosphorus to Cravath Lake, 18 pounds per year, or about 9 percent of the total loading, are estimated to be contributed by runoff from rural land, and 179 pounds per year, or about 86 percent, from urban land. About 10 pounds, or about 5 percent, are expected to be contributed by direct precipitation onto the lake surface. Thus, it may be anticipated that not only will the amount of the phosphorus load decrease, but that the distribution of the sources of the phosphorus load to the Lake may change, with the amount of phosphorus being contributed from urban sources increasing, while the amount of phosphorus from rural sources will decrease.

Table 10 shows estimated phosphorus loads to Cravath Lake from its total tributary area under year 2000 conditions. It was estimated that, under year 2000 conditions, the total phosphorus load to Cravath Lake from its total tributary area was about 13,010 pounds. Of the annual total phosphorus load, it was estimated that 12,309 pounds per year, or about 95 percent of the total loading, were contributed by runoff from rural lands, mostly agricultural, and 576 pounds per year, or about 4 percent, were contributed by runoff from urban lands, mostly from residential sources. About 125 pounds, or about 1 percent, were contributed by direct precipitation onto the lake surface.

### ***Trippe Lake***

As shown in Table 11, existing year 2000 phosphorus loads to Trippe Lake from its direct tributary area were identified and quantified using SEWRPC land use inventory data.<sup>22</sup> It was estimated that, under year 2000 conditions, the total phosphorus load to Trippe Lake from its direct tributary area was 238 pounds. Of the annual total phosphorus load, it was estimated that 165 pounds per year, or about 69 percent of the total loading, were contributed by runoff from rural lands, mostly agricultural, and 59 pounds per year, or about 25 percent, were contributed by runoff from urban lands, mostly from residential sources. About 14 pounds, or about 6 percent, were contributed by direct precipitation onto the lake surface.

Table 11 also shows the estimated phosphorus loads to Trippe Lake from its direct tributary area under planned year 2035 conditions. Under 2035 conditions, as set forth in the adopted regional land use plan,<sup>23</sup> the annual total phosphorus load to the Lake is anticipated to diminish as agricultural activities within the area directly tributary to Trippe Lake are replaced by urban residential land uses. The most likely annual total phosphorus load to the Lake under the planned conditions is estimated to be 118 pounds. Of the total annual forecast phosphorus load to Trippe Lake, two pounds per year, or about 2 percent of the total loading, are estimated to be contributed by runoff from rural land, and 102 pounds per year, or about 86 percent, from urban land. About 14 pounds, or about 12 percent, are expected to be contributed by direct precipitation onto the lake surface. Thus, it may be anticipated that not only will the amount of the phosphorus load decrease, but that the distribution of the sources of the phosphorus load to the Lake may change, with the amount of phosphorus being contributed from urban sources experiencing an increase, while the amount of phosphorus from rural sources will decrease.

Table 12 shows estimated phosphorus loads to Trippe Lake from its total tributary area under year 2000 conditions. It was estimated that, under year 2000 conditions, the total phosphorus load to Trippe Lake from its total tributary area was 6,419 pounds. Of the annual total phosphorus load, it was estimated that 6,056 pounds per year, or about 94 percent of the total loading, were contributed by runoff from rural lands, mostly agricultural, and 239 pounds per year, or about 4 percent, were contributed by runoff from urban lands, mostly from residential sources. About 124 pounds, or about 2 percent, were contributed by direct precipitation onto the lake surface.

Phosphorus release from the lake bottom sediments, or internal loading, as discussed above, does not appear to have been a contributing factor to the total phosphorus loading to either Cravath or Trippe Lake.

### **Urban Heavy Metals Loadings**

Urbanization brings with it increased use of metals and other materials that contribute pollutants to aquatic systems.<sup>24</sup> The majority of these metals becomes associated with sediment particles,<sup>25</sup> and, consequently, is likely to be encapsulated into the bottom sediments of a lake.

### ***Cravath Lake***

The estimated loadings of copper and zinc likely to be contributed to Cravath Lake from its direct tributary area under existing year 2000 and forecast year 2035 land use conditions are shown in Table 9. In 2000, eight pounds of copper and 31 pounds of zinc were estimated to be contributed annually to Cravath Lake from its direct tributary area, all from urban lands. Under planned year 2035 conditions, as set forth in the adopted regional land

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<sup>22</sup>SEWRPC Planning Report No. 48, op. cit.

<sup>23</sup>Ibid.

<sup>24</sup>Jeffrey A. Thornton, et al., op. cit.

<sup>25</sup>Werner Stamm and James J. Morgan, *Aquatic Chemistry: An Introduction Emphasizing Chemical Equilibria in Natural Waters*, Wiley-Interscience, New York, 1970.

use plan,<sup>26</sup> the annual zinc load to the Lake is anticipated to remain about the same as estimated under existing year 2000 conditions, but it is estimated that the copper load to the Lake may increase to about 12 pounds per year.

Estimated loadings of copper and zinc to Cravath Lake from its total tributary area under existing year 2000 conditions are shown in Table 10. In 2000, 146 pounds of copper and 31 pounds of zinc were estimated to be contributed annually to Cravath Lake from its total tributary area, all from urban lands.

#### *Trippe Lake*

The estimated loadings of copper and zinc likely to be contributed to Trippe Lake from its direct tributary area under existing year 2000 and forecast year 2035 land use conditions as set forth in the adopted regional land use plan,<sup>27</sup> are shown in Table 11. In 2000, six pounds of copper and 31 pounds of zinc were estimated to be contributed annually to Trippe Lake from its direct tributary area, all from urban lands. Under planned year 2035 conditions, the annual heavy metal loads to the Lake are anticipated to remain at about the same as those estimated under existing year 2000 conditions, with a slight increase in copper loading to about seven pounds per year.

Estimated loadings of copper and zinc to Trippe Lake from its total tributary area under existing year 2000 conditions are shown in Table 12. In 2000, 59 pounds of copper and 31 pounds of zinc were estimated to be contributed annually to Trippe Lake from its total tributary area, all from urban lands.

## **TROPHIC STATUS**

Lakes are commonly classified according to their degree of nutrient enrichment, or trophic status. The ability of lakes to support a variety of recreational activities and healthy fish and other aquatic life communities is often correlated to the degree of nutrient enrichment that has occurred. There are three terms generally used to describe the trophic status of a lake: oligotrophic, mesotrophic, and eutrophic.

Oligotrophic lakes are nutrient-poor lakes. These lakes characteristically support relatively few aquatic plants and often do not contain very productive fisheries. Oligotrophic lakes may provide excellent opportunities for swimming, boating, and waterskiing. Because of the naturally fertile soils and the intensive land use activities, there are relatively few oligotrophic lakes in southeastern Wisconsin.

Mesotrophic lakes are moderately fertile lakes which may support abundant aquatic plant growths and productive fisheries. However, nuisance growths of algae and macrophytes are usually not exhibited by mesotrophic lakes. These lakes may provide opportunities for all types of recreational activities, including boating, swimming, fishing, and waterskiing. Many lakes in southeastern Wisconsin are mesotrophic.

Eutrophic lakes are nutrient-rich lakes. These lakes often exhibit excessive aquatic macrophyte growths and/or experience frequent algae blooms. If the lakes are shallow, fish winterkills may be common. While portions of such lakes are not ideal for swimming and boating, eutrophic lakes may support very productive fisheries. Although some eutrophic lakes are present in the Region, severely eutrophic lakes are rare, especially since the regionwide implementation of recommendations put forth in the regional water quality management plan. Severely enriched lakes are sometimes referred to as being hypertrophic.

Several numeric "scales," based on one or more water quality indicators, have been developed to define the trophic condition of a lake. Because trophic state is actually a continuum from very nutrient poor to very nutrient

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<sup>26</sup>SEWRPC Planning Report No. 48, op. cit.

<sup>27</sup>Ibid.

Table 13

**TROPHIC STATE INDICATOR (TSI)  
FOR TRIPPE LAKE: 2004-2009**

Year	Average TSI Based on Secchi	Average TSI Based on Chlorophyll-a	Average TSI Based on Total Phosphorus
2004	55	--	56
2005	--	--	--
2006	49	--	--
2007	54	--	--
2008	55	42	55
2009	55	46	58

Source: Wisconsin Department of Natural Resources and SEWRPC.

was estimated to have a TSI value of 64; Trippe Lake was estimated to have a value of 64, also. A value above 50 is generally indicative of the enriched conditions associated with eutrophic lakes. As shown in Table 13, Secchi-disk data for the deep hole in Trippe Lake indicate a TSI of about 55 while chlorophyll-*a* data for Trippe Lake indicate a TSI of about 44 and total phosphorus data indicate a TSI of about 56; these values are suggestive of eutrophic conditions. As set forth in the regional water quality management plan,<sup>31</sup> Cravath and Trippe Lakes are classified as eutrophic waterbodies. Such determination is consistent with the aforementioned physical factors of the Lakes—to wit, lake bottom sediment composition and lake bottom contours—and with the available, albeit limited, water quality data obtained from the Lakes.

## AQUATIC PLANTS: DISTRIBUTION AND MANAGEMENT AREAS

### Aquatic Plant Diversity in Cravath and Trippe Lakes

For the current study, SEWRPC staff conducted aquatic plant surveys on Cravath and Trippe Lakes during August of 2008, the results of which are shown in Tables 14 and 15 and Maps 9 and 10. Overall, Trippe Lake contained a greater diversity of aquatic plant species than did Cravath. Of note is the identification of eight different species of pondweed in Trippe Lake. A critical key to the ability of an ecosystem, such as a lake, to maintain its ecological integrity is through *biological diversity*. Conserving the biological diversity, or biodiversity, of an ecosystem helps not only to sustain the system, but preserves a spectrum of options for future decisions regarding the management of that system. The presence of a diverse community of pondweed is generally considered to be indicative of a healthy lake and good habitat for fishes and aquatic life.

<sup>28</sup>H. Olem and G. Flock, *U.S. Environmental Protection Agency Report EPA-440/4-90-006, The Lake and Reservoir Restoration Guidance Manual, Second Edition, Walworth, D.C., August 1990.*

<sup>29</sup>R.E. Carlson, "A Trophic State Index for Lakes," *Limnology and Oceanography, Vol. 22, No. 2, 1977.*

<sup>30</sup>See R.A. Lillie, S. Graham, and P. Rasmussen, "Trophic State Index Equations and Regional Predictive Equations for Wisconsin Lakes," *Research and Management Findings; Wisconsin Department of Natural Resources Publication No. PUBL-RS-735 93, May 1993.*

<sup>31</sup>SEWRPC Memorandum Report No. 93, *A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.*

rich, a numeric scale is useful for comparing lakes and for evaluating trends in water quality conditions. Care must be taken, however, that the particular scale used is appropriate for the lake to which it is applied. In this case, two indices appropriate for Wisconsin lakes have been used; namely, the Vollenweider-OECD open-boundary trophic classification system,<sup>28</sup> and the Carlson Trophic State Index (TSI),<sup>29</sup> with a variation known as the Wisconsin Trophic State Index value (WTSI).<sup>30</sup> The WTSI is a refinement of the Carlson TSI and is designed to account for the greater humic acid content—brown water color—present in Wisconsin lakes; it has been adopted by the WDNR for use in lake management investigations.

Based upon data gathered during the aforementioned ERSC satellite remote sensing study, Cravath Lake

Table 14

## AQUATIC PLANT SPECIES OBSERVED IN CRAVATH LAKE: JULY 2008

Aquatic Plant Species	Number of Sites Found	Frequency of Occurrence <sup>a</sup>	Relative Density <sup>b</sup>	Importance Value <sup>c</sup>
<i>Ceratophyllum demersum</i> (coontail).....	18	51.4	2.9	148.6
<i>Elodea canadensis</i> (waterweed).....	7	20.0	1.4	28.6
<i>Lemna minor</i> (duckweed).....	1	2.9	4.0	11.4
<i>Myriophyllum spicatum</i> (Eurasian water milfoil).....	18	51.4	2.2	111.4
<i>Nuphar advena</i> (yellow water lily).....	1	2.9	4.0	11.4
<i>Nymphaea odorata</i> (white water lily).....	4	11.4	1.5	17.1
<i>Potamogeton crispus</i> (curly-leaf pondweed).....	12	34.3	1.5	51.4
<i>Potamogeton pectinatus</i> (Sago pondweed).....	23	65.7	2.3	151.4
<i>Potamogeton pusillus</i> (small pondweed).....	1	2.9	1.0	2.9
<i>Potamogeton zosteriformis</i> (flat-stem pondweed).....	1	2.9	1.0	2.9

NOTE: Sampling occurred at 35 sampling sites along 13 transects.

<sup>a</sup>The percent frequency of occurrence is the number of occurrences of a species divided by the number of samplings with vegetation, expressed as a percentage. It is the percentage of times a particular species occurred when there was aquatic vegetation present, and is analogous to the Jesson and Lound point system.

<sup>b</sup>The average density is the sum of density ratings for a species divided by the number of sampling points with vegetation. The maximum density possible of 4.0 is assigned to plants that occur at all four points sampled at a given depth and is an indication of how abundant a particular plant is throughout a lake.

<sup>c</sup>The importance value is the product of the relative frequency of occurrence and the average density, expressed as a percentage. This number provides an indication of the dominance of a species within a community.

Source: SEWRPC.

During the 2008 survey, 10 different aquatic plant species were observed in Cravath Lake. The dominant species were Sago pondweed (*Potamogeton pectinatus*) and coontail (*Ceratophyllum demersum*), although Eurasian water milfoil (*Myriophyllum spicatum*), was also present in significantly large numbers. A complete list of species observed in Cravath Lake during the 2008 survey is found in Table 14 and shown on Map 9. In Trippe Lake, during the 2008 survey, 14 different species were observed: the dominant species was coontail, although Eurasian water milfoil, waterweed (*Elodea canadensis*), and white water lily (*Nymphaea odorata*), were also present in significant numbers. Table 15 contains the listing for Trippe Lake, with Map 10 depicting the locations of the plant species within Trippe Lake. By comparison, the nearby Lauderdale Lakes, for example, contained an aquatic plant community comprised of 19 different aquatic plant species.<sup>32</sup>

A complete species list of submersed aquatic plant species, compiled from the results of the 2008 SEWRPC aquatic plant survey in Cravath and Trippe Lakes, is set forth in Table 16, along with comments on the ecological significance of each plant on the list. Representative illustrations of these aquatic plants can be found in Appendix A.

<sup>32</sup>See SEWRPC Memorandum Report No. 143, An Aquatic Plant Management Plan for the Lauderdale Lakes, Walworth County, Wisconsin, August 2001.

Table 15

## AQUATIC PLANT SPECIES OBSERVED IN TRIPPE LAKE: JULY 2008

Aquatic Plant Species	Number of Sites Found	Frequency of Occurrence <sup>a</sup>	Relative Density <sup>b</sup>	Importance Value <sup>c</sup>
<i>Ceratophyllum demersum</i> (coontail).....	26	100.0	4.0	396.2
<i>Elodea canadensis</i> (waterweed).....	15	57.7	2.3	130.8
<i>Lemna minor</i> (duckweed).....	3	11.5	3.3	38.5
<i>Myriophyllum spicatum</i> (Eurasian water milfoil).....	21	80.8	2.6	211.5
<i>Nelumbo lutea</i> (American lotus).....	.. <sup>d</sup>	--	--	--
<i>Nymphaea odorata</i> (white water lily).....	15	57.7	2.3	130.8
<i>Potamogeton amplifolius</i> (large-leaf pondweed).....	5	19.2	1.4	26.9
<i>Potamogeton crispus</i> (curly-leaf pondweed).....	5	19.2	1.6	30.8
<i>Potamogeton foliosus</i> (leafy pondweed).....	1	3.9	2.0	7.7
<i>Potamogeton illinoensis</i> (Illinois pondweed).....	3	11.5	1.3	15.4
<i>Potamogeton natans</i> (floating-leaf pondweed).....	3	11.5	1.7	19.2
<i>Potamogeton nodosus</i> (long-leaf pondweed).....	1	3.9	1.0	3.9
<i>Potamogeton pectinatus</i> (Sago pondweed).....	10	38.5	1.9	73.1
<i>Potamogeton zosteriformis</i> (flat-stem pondweed).....	6	23.1	1.0	23.1
<i>Vallisneria americana</i> (wild celery/reel-grass).....	6	23.1	2.7	61.5

NOTE: Sampling occurred at 26 sampling sites along nine transects.

<sup>a</sup>The percent frequency of occurrence is the number of occurrences of a species divided by the number of samplings with vegetation, expressed as a percentage. It is the percentage of times a particular species occurred when there was aquatic vegetation present, and is analogous to the Jesson and Lound point system.

<sup>b</sup>The average density is the sum of density ratings for a species divided by the number of sampling points with vegetation. The maximum density possible of 4.0 is assigned to plants that occur at all four points sampled at a given depth and is an indication of how abundant a particular plant is throughout a lake.

<sup>c</sup>The importance value is the product of the relative frequency of occurrence and the average density, expressed as a percentage. This number provides an indication of the dominance of a species within a community.

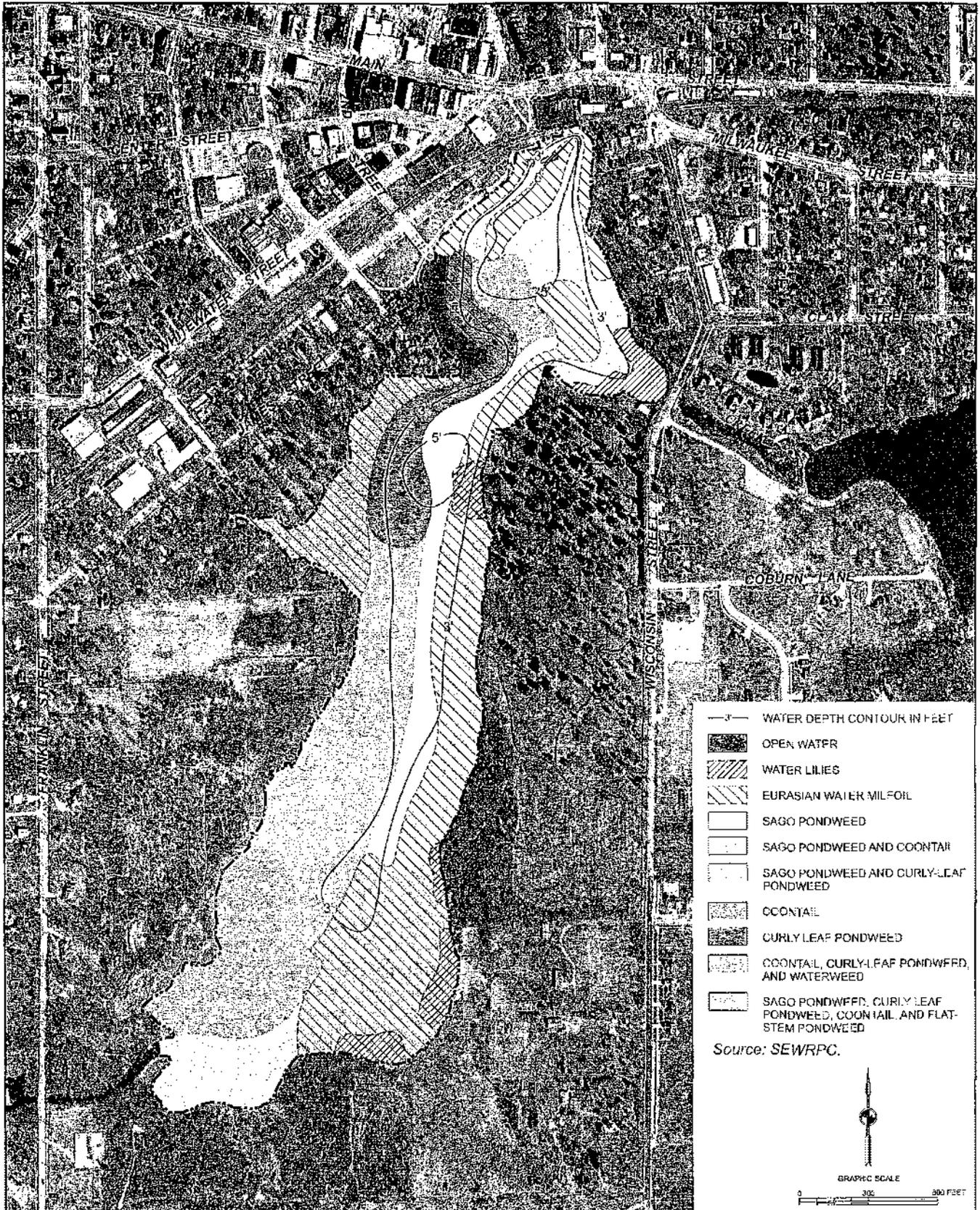
<sup>d</sup>Ms. Heidi Bunk of the Wisconsin Department of Natural Resources staff has noted the presence of this floating leaved aquatic plant in Trippe Lake.

Source: SEWRPC.

Aquatic plant communities do undergo cyclical and periodic changes, which reflect, in part, changing climatic conditions on an interannual scale and, also in part, the evolution of the aquatic plant community in response to changing hydroclimate conditions in the Lake; these latter, including factors, such as changes in long-term nutrient loading, sedimentation rates, and recreational use patterns. The former, interannual, changes occur over a period of three to seven years and may be temporary. The latter, evolutionary, occur over a decadal period or longer and are longer-lasting. Also, some species, such as the pondweeds, exhibit distinct seasonality, with individual species having well-defined growing periods that reflect water temperature, insolation, and other factors. In addition, the change in the Eurasian water milfoil population in a lake may reflect the results of aquatic management practices and/or may be a reflection of a periodicity the species naturally experiences. Such periodicity, especially in Eurasian water milfoil populations, has been observed elsewhere in southeastern Wisconsin, and potentially reflects the influences of a combination of stressors. These stressors include biological factors, such as the activities of naturally occurring Eurasian water milfoil weevils, as well as climatic and limnological factors, such as insolation, water temperature, and lake circulation patterns.

Map 9

AQUATIC PLANT COMMUNITY DISTRIBUTION IN CRAVATH LAKE: 2008



DATE OF PHOTOGRAPHY: APRIL 2005

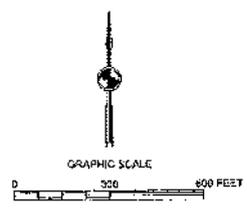
AQUATIC PLANT COMMUNITY DISTRIBUTION IN TRIPPE LAKE: 2008



- 4' — WATER DEPTH CONTOUR IN FEET
- [Pattern] OPEN WATER
- [Pattern] AREA THAT COULD NOT BE SURVEYED
- [Pattern] WATER LILIES
- [Pattern] EURASIAN WATER MILFOIL
- [Pattern] COONTAIL AND WATERWEED
- [Pattern] COONTAIL, WATERWEED, CURLY-LEAF PONDWEED, FLAT-STEM PONDWEED, AND LARGE-LEAF PONDWEED

- [Pattern] COONTAIL AND CURLY-LEAF PONDWEED
- [Pattern] COONTAIL, LARGE-LEAF PONDWEED, FLAT-STEM PONDWEED, FLOATING-LEAF PONDWEED, AND ILLINOIS PONDWEED
- [Pattern] COONTAIL, WATERWEED, SAGO PONDWEED, WILD CELERY, FLOATING-LEAF PONDWEED, AND ILLINOIS PONDWEED
- [Pattern] COONTAIL, WATERWEED, SAGO PONDWEED, CURLY-LEAF PONDWEED, FLAT-STEM PONDWEED, AND LARGE-LEAF PONDWEED

DATE OF PHOTOGRAPHY: APRIL 2005



Source: SEWRPC.

Table 16

**POSITIVE ECOLOGICAL SIGNIFICANCE OF AQUATIC PLANT  
SPECIES PRESENT IN CRAVATH AND TRIPPE LAKES: 2008**

Aquatic Plant Species Present	Ecological Significance
<i>Ceratophyllum demersum</i> (coontail)	Provides good shelter for young fish and supports insects valuable as food for fish and ducklings
<i>Elodea canadensis</i> (waterweed)	Provides shelter and support for insects which are valuable as fish food
<i>Lemna</i> spp. (duckweed)	Small duckweed is prized for its nutritional value as food for waterfowl; extensive rafts of duckweed can provide shelter for fish and even inhibit mosquito reproduction
<i>Myriophyllum spicatum</i> (Eurasian water milfoil)	None known; nonnative
<i>Nelumbo lutea</i> (American lotus)	Provides good shade and fair shelter for fishes; waterfowl sometimes eat the seeds, and muskrat eat the roots
<i>Nuphar advena</i> (yellow water lily)	Seeds provide food for waterfowl; leaves, stems, and flowers are food for deer; rhizomes are food source for muskrat and beaver; leaves provide shelter and shade for fish and habitat for invertebrates
<i>Nymphaea odorata</i> (white water lily)	Seeds provide food for waterfowl; leaves, stems, and flowers are food for deer; rhizomes are food source for muskrat and beaver; leaves provide shelter and shade for fish and habitat for invertebrates
<i>Potamogeton amplifolius</i> (large-leaf pondweed)	Offers shade, shelter and foraging for fish; valuable food for waterfowl
<i>Potamogeton crispus</i> (curly-leaf pondweed)	Nonnative
<i>Potamogeton foliosus</i> (leafy pondweed)	Provides food for geese and ducks; food for muskrat, beaver and deer; good surface area for insects and cover for juvenile fish
<i>Potamogeton illinoensis</i> (Illinois pondweed)	Provides shade and shelter for fish; harbor for insects; seeds are eaten by wildfowl
<i>Potamogeton natans</i> (floating-leaf pondweed)	Provides food for waterfowl, muskrat, beaver and deer; good fish habitat
<i>Potamogeton nodosus</i> (long-leaf pondweed)	Fruit is food source for waterfowl; habitat and foraging opportunities for fish
<i>Potamogeton pectinatus</i> (Sago pondweed)	This plant is the most important pondweed for ducks, in addition to providing food and shelter for young fish
<i>Potamogeton pusillus</i> (small pondweed)	Provides food for ducks, geese, muskrat, beaver, and deer, and provides food and shelter for fish
<i>Potamogeton zosteriformis</i> (flat-stem pondweed)	Provides some food for ducks
<i>Vallisneria spiralis</i> (wild celery/feel-grass)	Provides good shade and shelter, supports insects, and is valuable fish food

NOTE: Information obtained from *A Manual of Aquatic Plants* by Norman C. Fassett, University of Wisconsin Press; *Guide to Wisconsin Aquatic Plants*, Wisconsin Department of Natural Resources; and, *Through the Looking Glass...A Field Guide to Aquatic Plants*, Wisconsin Lakes Partnership, University of Wisconsin-Extension.

Source: SEWRPC.

Lack of aquatic plant survey data prior to 2008 precludes the ability to determine what changes in the aquatic plant community may be occurring in either Cravath Lake or Trippe Lake. Since both of the 2008 surveys were conducted using the modified Jesson and Lound transect method as promulgated by the WDNR, this

methodology, when utilized in successive aquatic plant surveys, will allow the statistical evaluation of changes in the aquatic plant community within the Lakes.<sup>33</sup>

### **Aquatic Plant Species of Special Significance**

#### ***Native Aquatic Plants***

There was one native plant species observed in the survey of Trippe Lake of exceptionally high ecological value: large-leaf pondweed (*Potamogeton amplifolius*), also known as musky weed or bass weed. This plant, as fishers well know, enjoys a reputation as a highly valuable provider of fish habitat. Additionally, this plant has achieved some measure of success as an introduced aquatic plant in transplanting efforts in Lac La Belle and Okanabee Lake, in Waukesha County, Wisconsin, making it a potentially valuable partner in littoral zone restoration projects.<sup>34</sup>

#### ***Nonnative Species***

During the 2008 aquatic plant surveys of Cravath and Trippe Lakes, several nonnative aquatic plant species of special significance were observed. Two of these species, Eurasian water milfoil and curly-leaf pondweed (*Potamogeton crispus*), are considered detrimental to the ecological health of the Lakes and are declared nuisance species identified in Chapters NR 40 and NR 109 of the *Wisconsin Administrative Code*.

Eurasian water milfoil is one of eight milfoil species found in Wisconsin and the only one known to be exotic or nonnative. Because of its nonnative nature, Eurasian water milfoil has few natural enemies that can inhibit its growth, which can be explosive under suitable conditions. The plant exhibits this characteristic growth pattern in lakes with organic-rich sediments, or where the lake bottom has been disturbed. It frequently has been reported as a colonizing species following dredging, unless its growth is anticipated and controlled. Eurasian water milfoil populations can displace native plant species and interfere with the aesthetic and recreational use of the waterbodies. This plant has been known to cause severe recreational use problems in lakes within the Southeastern Wisconsin Region.

Eurasian water milfoil reproduces by the rooting of plant fragments. Consequently, some recreational uses of lakes can result in the expansion of Eurasian water milfoil communities, especially when boat propellers fragment Eurasian water milfoil plants. These fragments, as well as fragments that occur for other reasons, such as wind-induced turbulence or fragmentation of the plant by fishes, are able to generate new root systems, allowing the plant to colonize new sites. The fragments also can cling to boats, trailers, motors, and/or bait buckets, and can stay alive for weeks contributing to the transfer of milfoil to other lakes. For this reason, it is very important to remove all vegetation from boats, trailers, and other equipment after removing them from the water and prior to launching in other waterbodies.

Curly-leaf pondweed is a plant that thrives in cool water and exhibits a peculiar split-season growth cycle that helps give it a competitive advantage over native plants and makes management of this species difficult. In late summer, the plant produces specialized over-wintering structures, or "turions." In late summer, the main body of the plant dies off and drops to the bottom where the turions lie dormant until the cooler fall water temperatures trigger the turions to germinate. Over the winter, the turions produce winter foliage that thrives under the ice. In spring, when water temperatures begin to rise again, the plant has a head start on the growth of native plants and

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<sup>33</sup>Memo from Stan Nichols, to J. Bode, J. Leverence, S. Borman, S. Engel, D., Helsel, entitled "Analysis of Macrophyte Data for Ambient Lakes-Dutch Hollow and Redstone Lakes example," Wisconsin Geological and Natural History Survey, University of Wisconsin-Extension, February 4, 1994.

<sup>34</sup>Wisconsin Lakes Partnership, Through the Looking Glass...A Field Guide to Aquatic Plants, Wisconsin Lakes Partnership, University of Wisconsin-Extension, 1999.

quickly grows to full size, producing flowers and fruit earlier than its native competitors. Because it can grow in more turbid waters than many native plants, protecting or improving water quality is an effective method of control of this species; clearer waters in a Lake can help native plants compete more effectively with curly-leaf pondweed.

### **Past and Present Aquatic Plant Management Practices**

An aquatic plant management program has been carried out on Trippe Lake in a documented manner since 1950; Cravath Lake has, only recently, been the subject of documented management efforts. Records of aquatic plant management efforts were first maintained by the WDNR beginning in 1950. Prior to 1950, aquatic plant management interventions were likely, but were not recorded. Currently, all forms of aquatic plant management are subject to permitting by the WDNR pursuant to authorities granted the Department under Chapters NR 107 and NR 109 of the *Wisconsin Administrative Code*.

Since 1950, the aquatic plant management activities in Cravath and Trippe Lakes could be characterized as primarily a chemical control program designed to minimize nuisance growths of aquatic macrophytes. A cumulative summary of chemical applications for Cravath Lake is shown in Table 17; cumulative totals for Trippe Lake are set forth in Table 18. Between 1950 and 1969, as shown in the tables, approximately 4,874 pounds of sodium arsenite were applied to Trippe Lake; none was applied to Cravath Lake.

Sodium arsenite was typically sprayed onto the surface of a lake within an area of up to 200 feet from the shoreline. Treatment typically occurred between mid-June and mid-July. The amount of sodium arsenite used was calculated to result in a concentration of about 10 mg/l sodium arsenite (about five mg/l arsenic) in the treated lake water. The sodium arsenite typically remained in the water column for less than 120 days. Although the arsenic residue was naturally converted from a highly toxic form to a less toxic and less biologically active form, much of the arsenic residue was deposited in the lake sediments.

When it became apparent that arsenic was accumulating in the sediments of treated lakes, the use of sodium arsenite was discontinued in the State in 1969. The applications and accumulations of arsenic were found to present potential health hazards to both humans and aquatic life. In drinking water supplies, arsenic was suspected of being carcinogenic and, under certain conditions, arsenic has leached into and contaminated groundwater, especially in sandy soils that serve as a source of drinking water in some communities. The U.S. Environmental Protection Agency-recommended drinking water standard for arsenic is a maximum level of 0.05 mg/l.

Currently, since 2001, aquatic plant control has been focused on managing nuisance growths of Eurasian water milfoil. This control program utilizes a combination of granular and liquid 2,4-D to target Eurasian water milfoil growths in the Lakes, as documented in Tables 17 and 18.<sup>35</sup>

### **FISHERIES AND WILDLIFE**

The WDNR reports that, in both Cravath Lake and Trippe Lake, panfish are considered to be "common," largemouth bass and northern pike are considered to be "present."<sup>36</sup> Also present are the following State-designated special-concern species: American eel, (*Anguilla rostrata*), in Cravath Lake; lake chubsucker, (*Erimyzon sucetta*), in Trippe Lake; and, least darter, (*Etheostoma microperca*), in Whitewater Creek, upstream of Trippe Lake.

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<sup>35</sup>2,4-D will also control desirable species, such as *Nymphaea sp.*; see Wisconsin Department of Natural Resources PUBI-WR-236 90, Chemical Fact Sheet: 2,4-D, May 1990.

<sup>36</sup>Wisconsin Department of Natural Resources Publication No. PUB-FH-800 2005, Wisconsin Lakes, 2005.

Table 17

## CHEMICAL CONTROLS ON CRAVATH LAKE: 1950-2009

Year	Total Acres Treated	Algae Control			Macrophyte Control					
		Copper Sulfate (pounds)	Blue Vitriol (pounds)	Cutrine or Cutrine Plus (pounds)	Sodium Arsenite (pounds)	2,4-D (gallons)	2,4-D (pounds)	Diquat (gallons)	Glyphosate (gallons)	Endothal/Aquathol (gallons)
1950-2008	0.0	--	--	--	--	--	--	--	--	--
2009	9.0	--	--	--	--	27.0	--	--	--	--
2010	--	--	--	--	--	--	--	--	--	--
Total	9.0	--	--	--	--	27.0	--	--	--	--

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 18

## CHEMICAL CONTROLS ON TRIPPE LAKE: 1950-2009

Year	Total Acres Treated	Algae Control			Macrophyte Control					
		Copper Sulfate (pounds)	Blue Vitriol (pounds)	Cutrine or Cutrine Plus (pounds)	Sodium Arsenite (pounds)	2,4-D (gallons)	2,4-D (pounds)	Diquat (gallons)	Glyphosate (gallons)	Endothal/Aquathol (gallons)
1950-1969	--	--	--	--	4,784	--	--	--	--	--
1970-1996	--	--	--	--	--	--	--	--	--	--
1997	2.0	--	--	--	--	--	200	--	--	--
1998-2000	--	--	--	--	--	--	--	--	--	--
2001	13.0	--	--	--	--	--	1,300	--	--	--
2002	52.3	--	--	--	--	12.0	225	--	--	--
2003	13.3	--	--	--	--	40.0	450	--	--	--
2004	3.5	--	--	--	--	--	350	--	--	--
2005	9.8	--	--	--	--	10.0	650	--	--	--
2006	8.0	--	--	--	--	--	800	--	--	--
2007	8.0	--	--	--	--	--	800	--	--	--
2008	7.0	--	--	--	--	29.0	--	--	--	--
2009	6.5	--	--	--	--	--	650	--	--	--
2010	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	4,784	91.0	5,425	--	--	--

Source: Wisconsin Department of Natural Resources and SEWRPC.

Stocking of Cravath Lake with northern pike occurred between 1985 and 2001, as shown in Table 19; intermittent stocking of northern pike occurred from 1982 through 2001 on Trippe Lake, as shown in Table 20.

With respect to wildlife, and given the urbanization of land uses present around the shorelands of the Lakes, most of the wildlife remaining are urban-tolerant species; smaller animals and waterfowl would be expected to inhabit the lakeshore areas; muskrats, beaver, grey and fox squirrels, and cottontail rabbits are likely the most abundant and widely distributed fur-bearing mammals in the immediate riparian areas; and, larger mammals, such as the whitetail deer, are likely to be confined to the larger wooded areas and the open meadows found within the tributary area of the Lakes. The remaining undeveloped areas provide the best-quality cover for many wildlife species.

Table 19

## FISH STOCKED INTO CRAVATH LAKE: 1985-2001

Year	Species Stocked	Number	Average Fish Length (inches)
1985	Northern pike	130	8.00
1991	Northern pike	300	8.00
1992	Northern pike	140	8.00
1994	Northern pike	136	7.50
1999	Northern pike	136	7.20
2001	Northern pike	170	7.60

Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 20

## FISH STOCKED INTO TRIPPE LAKE: 1982-2001

Year	Species Stocked	Number	Average Fish Length (inches)
1982	Northern pike	230	--
1985	Northern pike	230	8.00
1991	Northern pike	500	8.00
1992	Northern pike	230	8.00
1994	Northern pike	452	7.75
1999	Northern pike	226	7.20
2001	Northern pike	282	7.60

Source: Wisconsin Department of Natural Resources and SEWRPC.

The Cravath and Trippe Lakes total tributary area supports a significant population of waterfowl, including mallards, wood duck, and blue-winged teal. During the migration seasons a greater variety of waterfowl may be present and in greater numbers.

Amphibians and reptiles are vital components of the Cravath-Trippe Lakes ecosystem, and include frogs, toads, and salamanders, and turtles and snakes, respectively. About 14 species of amphibians and 16 species of reptiles would normally be expected to be present in the Lakes tributary area.

#### WDNR-Designated Sensitive Areas and SEWRPC-Designated Critical Species Habitat

Within or immediately adjacent to bodies of water, the WDNR identifies sites that have special importance biologically, historically, geologically, ecologically, or even archaeologically. Such areas are defined as "areas of aquatic vegetation identified by the Department as offering critical or unique fish and wildlife habitat, including seasonal or life-stage requirements, or offering water quality or erosion control benefits of the body of water" and, after comprehensive examination and study is completed by WDNR staff from many different disciplines and fields of study, are identified as Sensitive Areas pursuant to Chapter NR 107 of the *Wisconsin Administrative Code*. Currently, there are no WDNR-designated Sensitive Areas in Cravath and Trippe Lakes.

SEWRPC also has identified natural areas and critical species habitat areas within the Southeastern Wisconsin Region.<sup>37</sup> In this regard, the following natural areas contain intact native plant and animal communities of local and statewide significance and are shown on Map 11:

1. Bluff Creek Fens: A WDNR- owned, 106-acre excellent-quality springs and associated calcareous fens located at intervals along the headwaters of Bluff Creek;
2. Bluff Creek Woods: A part privately owned and part WDNR-owned, 338-acre extensive dry-mesic woods on rough glacial terrain, dominated by mature red oaks;
3. Clover Valley Fen State Natural Area: A WDNR-owned, 112-acre parcel, containing a series of 11,000-year-old peat mounds that rise eight to 10 feet above the surrounding lowland, formed by accumulations of partially decayed vegetation around slowly flowing springs;
4. Lake No. 10: A privately owned, 40-acre small, undeveloped lake in a kettle depression, containing deep and shallow marsh;
5. Lone Tree Trail Oak Woods: A WDNR-owned, 265-acre, former mosaic of xeric oak forest, open oak woodland, and oak savanna now overgrown with shrubs and containing the State-designated threatened kittentails (*Besseyia bullii*);
6. Whitewater Oak Woods: A part WDNR-owned and part privately owned, 240-acre xeric oak woodland has been designated as NA-3 (RSH), indicating it to be an area of local significance that supports rare, threatened, or endangered animal or plant species officially designated by the WDNR;
7. Rice Lake Dry Prairie: A WDNR-owned, one-acre small dry prairie remnant has been designated as NA-3, indicating it to be an area of local significance; and
8. Rock Shrub Fen: A privately owned, 46-acre, good-quality wetland complex.

Of the abovelisted sites, the following have been classified as NA-1, identifying them as sites of statewide or greater significance: Bluff Creek Fens, Clover Valley Fen State Natural Area, and Bluff Creek Woods. All other sites listed above have been classified as NA-3, identifying them as areas of local significance.

Critical aquatic habitat areas located within the Cravath-Trippe Lakes tributary area include:

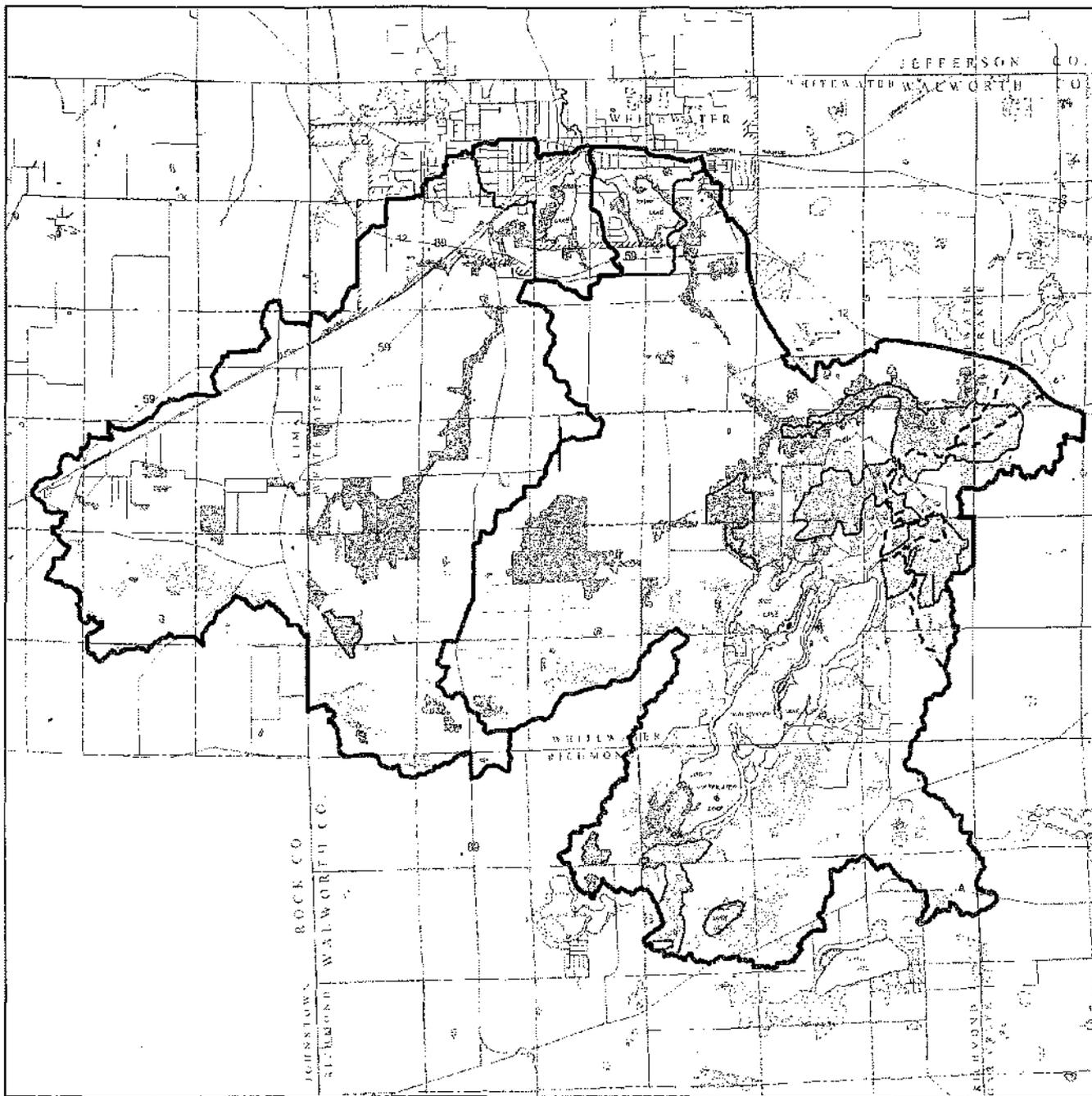
1. Bluff Creek: 1.9 miles of high-quality fast, hard, cold-water Class I trout stream with a classification of AQ-1, identifying it as a site of statewide or greater significance;
2. Trippe Lake: Classified as AQ-2, identifying it as a site of countywide or regional significance; and
3. Cravath Lake, Whitewater Creek, Whitewater Lake, Rice Lake, and Lake No. 10: All rated as AQ-3, identifying them as sites of local significance.

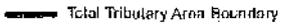
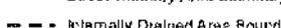
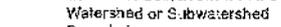
In addition to the abovelisted sites, the Cravath-Trippe Lakes tributary area contains several other sites that, although not located within designated natural areas, provide critical habitat for State-designated threatened plant species of concern, Sullivant's milkweed, *Asclepias sullivantii*; Mills Road Prairie; Anderson Road; and Island Road Prairie.

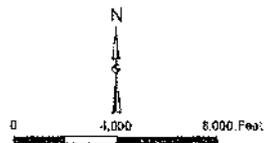
<sup>37</sup>SEWRPC Planning Report No. 42, A Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, September 1997.

Map 11

**WETLANDS, WOODLANDS, AND NATURAL AREAS WITHIN THE CRAVATH AND TRIPPE LAKES TOTAL TRIBUTARY AREA**



-  Natural Area
-  Critical Species Habitat Site
-  Woodlands
-  Wetlands
-  Surface Water
-  Total Tributary Area Boundary
-  Direct Tributary Area Boundary
-  Internally Drained Area Boundary where not Coincident with the Watershed or Subwatershed Boundaries



NOTE: Critical species habitat data not available in Rock County.

Source: Rock County Land Information Office and SEWRPC.

In the Cravath and Trippe Lakes tributary area, the lakeshores located within the environmental corridors, as shown on Map 12, should be candidates for immediate protection through proper zoning or through public ownership. Of the areas not already publicly owned, the remaining areas of natural shoreline and riparian wetland areas are perhaps the most sensitive areas in need of greatest protection.

## RECREATIONAL USES AND FACILITIES

As set forth in the regional water quality management plan, Cravath and Trippe Lakes are multi-purpose waterbodies serving a variety of recreational uses and are used year-round as a visual amenity.<sup>38</sup> Active recreational uses include paddleboating, canoeing, kayaking, swimming, and fishing during the summer months, and cross-country skiing, snowmobiling, and ice-fishing during the winter; popular passive recreational uses include walking, bird watching, and picnicking. The Lakes do not experience intense recreational boating use. Public access to the Lakes is provided through two city-owned and operated sites: on Cravath Lake, at the north end of the Lake adjacent to the recreational-concession facility in the city park; on Trippe Lake, located on the northwestern shore of the Lake in the city park. Both Lakes are deemed to have adequate public access as defined in Chapter NR 1 of the *Wisconsin Administrative Code*, which establishes quantitative standards for determining the adequacy of public recreation boating access, setting maximum and minimum standards based upon available parking facilities for car-top and car-trailer units.

Surveys of watercraft docked or moored on the Lakes were conducted by SEWRPC staff in 2008 for the current study. During the current study, a total of 27 watercraft were observed either moored in the water or stored on land in the shoreland areas around the Lakes, as shown in Table 21, 16 around Cravath Lake, and 11 around Trippe Lake.

The types of watercraft docked or moored on a lake, as well as the relative proportion of nonmotorized to motorized watercraft, reflect the attitudes of the primary users of the lake, the lake residents. For example, in a similar survey conducted on nearby Lake Wandawega in 2007, about 15 percent of watercraft were motorized with pontoon boats comprising the single largest category of motorized watercraft. The 2008 survey on nearby Lauderdale Lakes showed motorized watercraft accounted for about 73 percent of all watercraft with powerboats comprising the single largest category of motorized watercraft. This would indicate that recreational high-speed boating is more of a major active recreational use on the Lauderdale Lakes than on Wandawega Lake. On Cravath and Trippe Lakes, only two motorized boats, both fishing boats, were observed; all other watercraft were nonmotorized and comprised of canoes, paddleboats, and rowboats. This observation is consistent with what would be expected in light of the fact that both Lakes are "no wake" waterbodies.

To assess the degree of recreational boat use on a lake, it has been estimated that, in southeastern Wisconsin, the number of watercraft operating on a lake at any given time is between about 2 percent and 5 percent of the total number of watercraft docked and moored. On both Lakes combined, this would amount to only about one or two boats.

There is a range of opinions on the issue of what constitutes optimal boating density, or number of acres of open water available in which to operate a boat on a lake. In this regard, during the mid-1980s, an average area of about 16 acres per powerboat or sailboat was, at that time, considered suitable for the safe and enjoyable use of a boat on a lake. Over time, motorized watercrafts of all kinds have steadily increased in power and speed. For safe waterskiing and fast boating, the regional park and open space plan suggested an area of 40 acres per boat as the

<sup>38</sup>SEWRPC Planning Report No. 30, op. cit. See also SEWRPC Memorandum Report No. 93, A Regional Water Quality Management Plan for Southeastern Wisconsin: An Update and Status Report, March 1995.



Table 21

WATERCRAFT DOCKED OR MOORED ON CRAVATH AND TRIPPE LAKES: 2008<sup>a</sup>

Type of Watercraft—Cravath Lake									
Powerboat	Fishing Boat	Pontoon Boat	Personal Watercraft	Canoe	Sailboat	Kayak	Paddleboat	Rowboat	Total
0	0	0	0	5	0	0	7	4	16

Type of Watercraft—Trippe Lake									
Powerboat	Fishing Boat	Pontoon Boat	Personal Watercraft	Canoe	Sailboat	Kayak	Paddleboat	Rowboat	Total
0	2	0	0	3	0	0	1	5	11

Type of Watercraft—Total for Both Lakes									
Powerboat	Fishing Boat	Pontoon Boat	Personal Watercraft	Canoe	Sailboat	Kayak	Paddleboat	Rowboat	Total
0	2	0	0	8	0	0	8	9	27

<sup>a</sup>Including trailered watercraft and watercraft on land observable during survey.

Source: SEWRPC.

minimum area necessary for safe operations.<sup>39</sup> Since both Lakes are “no wake” waterbodies, eliminating high-speed boat use, it is unlikely that densities of any type of watercraft would reach levels as to be considered problematic or a safety issue.

Another way to assess the degree of recreational boat use on a lake is through direct counts of boats actually in use on a lake at a given time. During 2008, surveys to assess the types of watercraft in use on a typical summer weekday and a typical summer weekend day were conducted by SEWRPC staff. The results of these surveys are shown in Table 22. As shown in the table, overall there was very little use of watercraft on either Cravath Lake or Trippe Lake. No watercraft were observed to be in use on Trippe Lake on either a weekday or weekend day. On Cravath Lake, canoes and paddleboats were the most commonly used watercraft, and even then only in fairly small numbers.

Table 23 shows the various types of recreational activities engaged in by people using Cravath and Trippe Lakes during a typical summer weekday and a typical summer weekend in 2008. The most popular weekday and weekend recreational activities on the Lakes, both as a whole and individually, were: fishing from shore, going to the parks, and canoeing/paddleboating. Fishing from boats was also engaged in on Cravath Lake.

Recreational boating activities on Cravath and Trippe Lakes are currently regulated through City of Whitewater ordinances as appended hereto in Appendix B.

<sup>39</sup>See SEWRPC Planning Report No. 27, A Regional Park and Open Space Plan for Southeastern Wisconsin: 2000, November 1977.

Table 22

## WATERCRAFT IN USE ON CRAVATH AND TRIPPE LAKES: SUMMER 2008

Cravath Lake									
Date and Time	Powerboat	Pontoon Boat	Fishing Boat	Personal Watercraft	Sailboat	Canoe/ Kayak	Wind Surf Board	Paddleboat	Total
Thursday, July 17									
9:00 a.m. to 10:00 a.m.	0	0	0	0	0	0	0	0	0
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	4	0	3	7
Sunday, July 20									
9:00 a.m. to 10:00 a.m.	0	0	1	0	0	1	0	0	2
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	0	0	0	0

Trippe Lake									
Date and Time	Powerboat	Pontoon Boat	Fishing Boat	Personal Watercraft	Sailboat	Canoe/ Kayak	Wind Surf Board	Paddleboat	Total
Thursday, July 17									
9:00 a.m. to 10:00 a.m.	0	0	0	0	0	0	0	0	0
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	0	0	0	0
Sunday, July 20									
9:00 a.m. to 10:00 a.m.	0	0	0	0	0	0	0	0	0
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	0	0	0	0

Total for Both Lakes									
Date and Time	Powerboat	Pontoon Boat	Fishing Boat	Personal Watercraft	Sailboat	Canoe/ Kayak	Wind Surf Board	Paddleboat	Total
Thursday, July 17									
9:00 a.m. to 10:00 a.m.	0	0	0	0	0	0	0	0	0
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	4	0	3	7
Sunday, July 20									
9:00 a.m. to 10:00 a.m.	0	0	1	0	0	1	0	0	2
1:30 p.m. to 2:30 p.m.	0	0	0	0	0	0	0	0	0

Source: SEWRPC.

## LOCAL ORDINANCES

As shown in Table 24, the Towns of LaGrange, Richmond, Sugar Creek, and Whitewater have each adopted the Walworth County ordinances in regard to general zoning, floodland zoning, and shoreland or shoreland-wetland zoning; the Towns of Richmond and Whitewater have adopted the Walworth County ordinances in regards to subdivision control; the Towns of LaGrange and Sugar Creek have adopted both Town and Walworth County ordinances regarding subdivision control; the Towns of Sugar Creek and Whitewater have adopted the Walworth County ordinances regarding construction site erosion control and stormwater management; the Town of LaGrange has adopted its own ordinance regarding construction site erosion control/stormwater management; the Town of Richmond administers one- and two-family erosion control regulations locally, other than within shoreland areas, where the County is responsible for enforcement; and the City of Whitewater has adopted its own ordinances regarding general zoning, floodland zoning, shoreland or shoreland-wetland zoning, subdivision control, and construction site erosion control and stormwater management. The Town of Lima, in Rock County, has adopted Rock County ordinances in regards to floodland, shoreland and shoreland-wetland zoning, as well as construction site erosion control and stormwater management and has adopted the County's and its own ordinances regarding subdivision control. Rock County has no general zoning, hence the Town of Lima has adopted its own general zoning ordinances.

Table 23

PARTICIPANTS ENGAGED IN WATER-BASED RECREATION IN/ON CRAVATH AND TRIPPE LAKES: SUMMER 2008

Cravath Lake										
Date and Time	Fishing from Shoreline	Pleasure Boating	Skiing/Tubing	Sailing	Operating Personal Watercraft	Swimming	Fishing from Boats	Canoeing/Paddle Boating	Park Goers	Total
Thursday, July 17	8	0	0	0	0	0	0	0	8	16
9:00 a.m. to 10:00 a.m.	3	0	0	0	0	0	0	12	9	24
1:30 p.m. to 2:30 p.m.										
Total for the Day	11	0	0	0	0	0	0	12	17	40
Percent	28	0	0	0	0	0	0	30	42	100
Sunday, July 20	2	0	0	0	0	0	1	1	2	6
9:00 a.m. to 10:00 a.m.	4	0	0	0	0	0	0	0	12	16
1:30 p.m. to 2:30 p.m.										
Total for the Day	6	0	0	0	0	0	1	1	14	22
Percent	27	0	0	0	0	0	5	5	63	100

Tripp Lake										
Date and Time	Fishing from Shoreline	Pleasure Boating	Skiing/Tubing	Sailing	Operating Personal Watercraft	Swimming	Fishing from Boats	Canoeing/Paddle Boating	Park Goers	Total
Thursday, July 17	0	0	0	0	0	0	0	0	3	3
9:00 a.m. to 10:00 a.m.	0	0	0	0	0	0	0	0	2	2
1:30 p.m. to 2:30 p.m.										
Total for the Day	0	0	0	0	0	0	0	0	5	5
Percent	0	0	0	0	0	0	0	0	100	100
Sunday, July 20	5	0	0	0	0	0	0	0	3	8
9:00 a.m. to 10:00 a.m.	14	0	0	0	0	0	0	0	4	18
1:30 p.m. to 2:30 p.m.										
Total for the Day	19	0	0	0	0	0	0	0	7	26
Percent	73	0	0	0	0	0	0	0	27	100

Total for Both Lakes										
Date and Time	Fishing from Shoreline	Pleasure Boating	Skiing/Tubing	Sailing	Operating Personal Watercraft	Swimming	Fishing from Boats	Canoeing/Paddle Boating	Park Goers	Total
Thursday, July 17	8	0	0	0	0	0	0	0	11	19
9:00 a.m. to 10:00 a.m.	3	0	0	0	0	0	0	12	11	26
1:30 p.m. to 2:30 p.m.										
Total for the Day	11	0	0	0	0	0	0	12	22	45
Percent	24	0	0	0	0	0	0	27	49	100
Sunday, July 20	7	0	0	0	0	0	1	1	5	14
9:00 a.m. to 10:00 a.m.	18	0	0	0	0	0	0	0	16	34
1:30 p.m. to 2:30 p.m.										
Total for the Day	25	0	0	0	0	0	1	1	21	48
Percent	52	0	0	0	0	0	2	2	44	100

Source: SEWRPC.

Table 24

LAND USE REGULATIONS WITHIN THE AREA TRIBUTARY TO  
CRAVATH AND TRIPPE LAKES IN WALWORTH COUNTY BY CIVIL DIVISION: 2003

Community	Type of Ordinance				
	General Zoning	Floodland Zoning	Shoreland or Shoreland-Wetland Zoning	Subdivision Control	Construction Site Erosion Control and Stormwater Management
Walworth County.....	Adopted	Adopted	Adopted and Wisconsin Department of Natural Resources approved	Adopted	Adopted
Town of LaGrange.....	County ordinance	County	County	County and Town	Adopted
Town of Richmond.....	County ordinance	County	County	County	-- <sup>a</sup>
Town of Sugar Creek.....	County ordinance	County	County	County and Town	County
Town of Whitewater.....	County ordinance	County	County	County	County
City of Whitewater.....	City ordinance	City ordinance	City ordinance	City ordinance	City ordinance
Rock County.....	--	Adopted	Adopted	Adopted	Adopted
Town of Lima.....	Adopted	County	County	County and Town	County

<sup>a</sup>The Town of Richmond administers one- and two-family erosion control regulations locally, other than within shoreland areas, where the County is responsible for enforcement.

Source: SEWRPC.

## Chapter III

# COMMUNITY QUESTIONNAIRE SURVEY

### INTRODUCTION

An integral part of the process of lake protection plan formulation was the conduct of a questionnaire-based survey of City of Whitewater residents.<sup>1</sup> The questionnaire was developed jointly by the University of Wisconsin-Whitewater (UWW), the Southeastern Wisconsin Regional Planning Commission (SEWRPC), and the City of Whitewater *Ad Hoc* Lake Committee. Initial framing of the issues of concern to be addressed in the survey commenced during the autumn of 2008, with collaborative scoping meetings held under the auspices of the City of Whitewater *Ad Hoc* Lake Committee, and in which SEWRPC staff and UWW staff participated. These discussions helped to identify the broad thematic areas to be addressed, and the specific types of information to be collected, through a survey of City residents. Detailed survey design commenced during the spring of 2009, with the questionnaire being sent to all residential properties within the City during the summer of 2009.

### SURVEY DESIGN

A mail-drop questionnaire survey instrument—the Trippe and Cravath Lakes Community Survey—was developed to collect a broad spectrum of primary information from residents of the City of Whitewater.

The overall purpose of the survey was to assess residents' uses of Trippe and Cravath Lakes, their uses of lakes other than Trippe and Cravath Lakes, their levels of awareness and concern related to various issues affecting the Lakes, and their willingness to pay for conducting programs that would improve Trippe and Cravath Lakes. The initial scoping meetings identified a number of distinct categories of information to be targeted through the survey. Survey design began with the categories of information and questions identified during these meetings, and proceeded through several iterations of refinement and review. The main types of questions included in the survey instrument were designed to gather information and insights from the City of Whitewater residents with regard to the following topic areas:

- Opinions regarding the importance of a range of issues affecting the State of Wisconsin and City of Whitewater—these questions helped to identify the relative importance ascribed by residents to various issues, including enhancement of “the quality of environmental resources such as recreational lakes.”

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<sup>1</sup>*This chapter was prepared by Professor Mark E. Eiswerth, Ms. Paige Peterson, and Ms. Christie Kornhoff, Economics Department, Hyland Hall, College of Business & Economics, University of Wisconsin-Whitewater 53190.*

- Basic information on the resident's dwelling in the City of Whitewater—these questions were designed to gather basic information on where the respondent's property was located in relation to Trippe and Cravath Lakes, and on how often the dwelling was typically occupied. Given that a percentage of the City's residential properties are occupied by students attending UWW, questions were included to ascertain the distance from the respondent's dwelling to the Lakes; the identity of the Lake closest to the dwelling; ownership status; the length of time the respondent has lived in the dwelling; the length of time the respondent has lived in the City of Whitewater; and, the residency status of the respondent—whether full time or part time, including the number of months, by season, that the respondent lives in the City of Whitewater.
- The respondent's use of Cravath and/or Trippe Lakes—these questions asked respondents if they or an immediate family member had visited either Cravath Lake or Trippe Lake within the last 12 months. For those respondents who had visited either Cravath Lake or Trippe Lake, the survey sought to determine the numbers of visits made by the respondent or family members to the Lakes during that period of time. The survey also sought to determine the kinds of recreational activities (boating, fishing, etc.) in which the respondent or their family members typically engaged while at Cravath or Trippe Lakes. These are key questions that help to establish the recreational use patterns of residents. Other questions sought to ascertain the mode of transportation used by residents to access the Lakes (motor vehicle, on foot, etc.) and boat ownership patterns.
- The respondent's activities at lakes other than Trippe and Cravath Lakes—these questions sought to identify whether respondents or their families had visited other lakes within the past 12 months; how many days they spent at other lakes over the past year; and, the favorite lakes that respondents liked to visit. These questions sought to characterize alternate lake sites that are utilized by City of Whitewater residents.
- Respondent awareness and concern about various issues affecting Trippe and Cravath Lakes—these questions were included to identify the level of awareness of issues relevant to Trippe and Cravath Lakes. Respondents also were asked to indicate their levels of concern about various problems associated with the Lakes. Specifically, respondents were asked about their levels of concern regarding the two issues dealt with in the contingent valuation scenarios described below; namely, 1) aquatic plant species present in Trippe and Cravath Lakes, and 2) sediments present in the Lakes, related to loss of depth and changes in water quality. Respondents also were asked to indicate how these problems affected (if at all) the quality of their enjoyment of Trippe and Cravath Lakes.
- Willingness to pay for improvements in lake quality—these questions formed an important centerpiece of the survey. Respondents were presented with three potential programs to improve Trippe and Cravath Lakes, and were asked to indicate their willingness-to-pay (WTP) to support the improvement programs, through payment of additional property taxes, each year for the next 10 years. The three improvement programs included: 1) the conduct of aquatic plant management programs within Trippe and Cravath Lakes, 2) sediment removal from the Lakes, and 3) the conduct of both aquatic plant control and sediment removal. These lake improvement scenarios are described more fully below.
- Respondent demographic characteristics—these questions sought to ascertain characteristics of respondents including annual income, education, and age.

A copy of the Trippe and Cravath Lakes Community Survey instrument is appended to this report as Appendix C. Two versions of the survey instrument were prepared and randomly distributed to potential residential respondents; the two versions included a) scenarios 1 and 3, and b) scenarios 2 and 3, as summarized above.

The Trippe and Cravath Lakes Community Surveys were mailed to all residents of the City of Whitewater during the summer of 2009. The mailing was accompanied by an advanced media release disseminated in area newspapers, including the *Whitewater Register* (June 18, 2009) and *Janesville Gazette* (June 20, 2009).

Returned surveys were carefully tabulated and evaluated by UWW staff. A total of 432 surveys, or 16 percent of the 2,748 surveys mailed, were completed and returned by respondents. The responses to the survey are summarized below, and tabular summaries are presented in Appendix D.

## **OVERVIEW OF SURVEY RESULTS**

### **Respondent Characteristics**

Through map-based analysis of the street addresses used in the mail survey sample, it was determined that a large number of the respondents lived very close to the Lakes. Approximately 51 percent of the respondents lived within one-half mile or less of the closest Lake's shoreline, and 69 percent lived within one mile or less from the shoreline. Approximately 66 percent of the respondents indicated that their dwellings were located closer to Cravath Lake than to Trippe Lake. Only 12 percent of the respondents indicated that they actually lived directly on one of these Lakes.

The majority of the respondents (88 percent) owned their residence in the City of Whitewater while 12 percent rented their homes. The average respondent has lived at their current residence for 14 years, and has lived in the City of Whitewater for 27 years. Almost all of the respondents (94 percent) were year-round residents of the City of Whitewater. Among those who were not year-round residents (6 percent), most lived in the City of Whitewater for between seven and eight months of the year; the average number of months spent in the City during the Fall, Summer, Spring, and Winter was 2.45, 2.25, 1.70, and 0.70 months, respectively.

The survey did not ask respondents to report their exact annual household incomes; rather, respondents were asked to select from an income range listed in the survey that best described their incomes. The resulting survey data indicated that the total annual household incomes of the respondents were diverse. The largest percentage of respondents (13 percent) fell into the \$50,000 to \$59,999 per year range. The next most common income range was \$40,000 to \$49,999 per year (12 percent of respondents). Roughly 11 percent of respondents fell into the \$30,000 to \$39,999 per year range and an equal percentage (11 percent) into the \$100,000-\$149,000 per year range. About one-half of the respondents reported an annual household income of less than \$50,000.

Respondents were also diverse with respect to education, although a large percentage are relatively well educated. The highest percentage of respondents (36 percent) indicated they had completed a graduate degree. This was followed by those who had completed a four-year degree (20 percent of respondents), those who had completed some college or technical school (19 percent). Those with a high school certificate comprised 12 percent of the respondents; those who had completed some graduate classes (8 percent); and, those who had completed a two-year degree (4 percent).

The survey did not ask respondents to indicate their exact age, but rather to indicate their age range among the several ranges indicated in the survey. The largest percentage of respondents (24 percent) fell into the 55 to 64 years age range. Approximately 45 percent of the respondents were 54 years of age or younger.

Additional details regarding the characteristics of the respondents are presented in tabular format in Appendix D.

### **Use of Trippe and Cravath Lakes**

The majority of respondents (76 percent) reported that either they or an immediate family member had visited either Trippe Lake or Cravath Lake at least once within the past 12 months. On average, respondents visited the Lakes 32 times within the past year, with the largest number of respondents (46 percent) visiting between one and 10 times. These survey data indicate a relatively high rate of visitation to the Lakes by City of Whitewater residents.

The most popular activities at Trippe and Cravath Lakes, ranked in order of the percentage of respondents that engaged in the activities, were as follows:

- Attending community special events (74 percent of respondents)
- Relaxing/entertaining (66 percent)
- Exercising (47 percent)
- Watching wildlife/birds (45 percent)
- Fishing (not including ice fishing) (32 percent)
- Picnicking (26 percent)

Relatively few respondents indicated that they used the Lakes for canocing/kayaking (14 percent), ice fishing (7 percent), or swimming or wading (62 percent).

A substantial number of respondents (27 percent) owned a boat, and among boat owners most had either a fishing boat with outboard motor (48 percent) or canoe (45 percent). Despite this, very few respondents used their boats on Trippe and Cravath Lakes, as reported below. Finally, respondents were evenly split on how they typically travelled to the Lakes: 51 percent reported that they travelled there on foot, while the same percentage travelled there by motor vehicle. Only 18 percent of the respondents travelled to the Lakes by bicycle.

#### **Activities at Other Lakes**

The majority of the survey respondents (62 percent) had visited lakes other than Trippe and Cravath Lakes during the past 12 months. Among those who had visited other lakes, the average number of days spent at the lakes was 17 days per year, with approximately 62 percent spending between one day and 10 days per year, and 17 percent spending between 11 and 20 days per year at the other lakes.

Respondents' favorite lakes to visit were within driving distance of their homes. These lakes, ranked in order of the percentage of respondents that listed a specific lake as their favorite, were as follows:

- Whitewater Lake (20 percent of respondents)
- Geneva Lake (8 percent)
- *Cravath Lake* (6 percent)
- Lake Michigan (7 percent)
- Rice Lake (4 percent)
- Delavan Lake (4 percent)
- Pleasant Lake (4 percent)
- Lauderdale Lakes (3 percent)
- Ottawa Lake (3 percent)
- *Trippe Lake* (3 percent)
- Turtle Lake (2 percent)
- Rock Lake (2 percent)

A complete listing of favorite lakes is included in Appendix D.

## Survey Respondents' Views on Lake Topics and Other Issues

### *Opinions on a Range of Issues Affecting the State of Wisconsin and the City of Whitewater*

In survey research it often is useful to gauge the relative importance that respondents place on a variety of issues, including and in addition to the primary issue focused on in the survey. This survey asked residents to indicate how important (on a 5-point Likert scale, with 1 = "Not at all important" and 5 = "Extremely important") they felt it would be to undertake various actions in their area. Ranked in order of importance, the results were as follows:

1. Make state and local government more efficient (mean score = 3.98/5)—identified by 37 percent of respondents as "extremely important."
2. Address the economic crisis by stemming the loss of jobs in your area (mean score = 3.96/5)—identified by 36 percent of respondents as "extremely important."
3. Improve schools in your area (mean score = 3.59/5)—identified by 28 percent of respondents as "extremely important."
4. Preserve working agricultural lands in your area (mean score = 3.53/5)—identified by 24 percent of respondents as "extremely important."
5. Enhance the quality of environmental resources such as recreational lakes (mean score = 3.46/5)—identified by 25 percent of respondents as "extremely important."
6. Develop more restaurants and shops in your area (mean score = 3.13/5)—identified by 19 percent of respondents as "extremely important."
7. Create more local hiking and biking trails (mean score = 2.59/5)—identified by 9 percent of respondents as "extremely important."
8. Increase local security against terrorism (mean score = 2.41/5)—identified by 7 percent of respondents as "extremely important."

The results above indicate that City of Whitewater residents do believe it is important to enhance the quality of environmental resources such as recreational lakes. However, residents on average attached greater importance to other issues, including state and local government efficiency, job loss, education, and the preservation of agricultural lands.

### *Levels of Awareness of Trippe and Cravath Lake Issues*

This section of the survey listed seven issues that are relevant for Trippe and Cravath Lakes. Respondents were asked to indicate their level of awareness with each of these issues on a three-point scale (1 = "I am not at all aware of this possible issue"; 2 = "I am somewhat aware of this issue"; and, 3 = "I am very much aware of this issue").

The survey results showed that mean awareness scores for various lake-related issues range from 1.81/3 to 2.53/3. Respondents reported being most aware of the issue that "the Lake's water clarity is poor" (mean awareness score = 2.53/3). The complete set of issues and accompanying awareness scores, ranked in order from highest to lowest, are:

1. The Lakes' water clarity is poor (mean awareness score = 2.53/3)
2. Residential development is occurring along Lakes (mean score = 2.44/3)
3. Agricultural runoff may affect Lake water quality (mean score = 2.32/3)
4. The Lakes are shallow (mean score = 2.28/3)

5. Sanding and salting of roads may affect Lake water quality (mean score = 2.24/3)
6. The Lakes have large amounts of aquatic plants (mean score = 2.16/3)
7. Commercial development is occurring near the Lakes (mean score = 1.81/3)

#### ***Levels of Concern Regarding Key Problems at Trippe and Cravath Lakes***

As described in the following sections, the balance of the survey focused on two issues in particular that were identified by the *Ad Hoc* Committee as being important at Trippe and Cravath Lakes: undesirable aquatic plants, and sedimentation of the Lakes that has caused loss of depth and changes in water quality. In relation to these issues, the results above indicate that residents are relatively quite aware of poor water clarity in the Lakes, while somewhat less aware of shallowness of the Lakes and the presence of large amounts of aquatic plants. A complete presentation of the issue awareness results appears in tabular format in Appendix D.

The survey included the following text to introduce respondents to the two key problems:

“Resource managers currently are concerned about the quality of Cravath and Trippe Lakes and resulting negative impacts on our ability to enjoy them. Undesirable weed species (for example, Eurasian water milfoil) are present in and around these lakes. Such weeds crowd out native aquatic plants (e.g., lily pads); reduce the quality of habitat for sportfish; and make it difficult to swim or operate boats. Resource managers are concerned about the deposits of sediment into these lakes. Too much sediment makes the lakes too shallow to support recreational uses such as swimming and boating, and increases problems with odor and poor water clarity.”

The survey then asked respondents to rate their levels of concern for these problems at the lakes, using a 5-point Likert scale with 1 = “Not at all concerned,” 2 = “A little concerned,” 3 = “Somewhat concerned,” 4 = “Very concerned,” and 5 = “Extremely concerned.”

The mean responses to this question for the two issues were similar, with a score of 3.52 for aquatic plant species and 3.59 for sedimentation. Approximately 28 percent and 26 percent of residents, respectively, were “extremely concerned” or “very concerned” about aquatic plant species present in the Lakes. In addition, 25 percent were “somewhat concerned” about this problem. Only 9 percent of residents were “not at all concerned” about aquatic plants.

With regard to sediment in the Lakes and associated decreases in depth and changes in water quality, 30 percent and 27 percent of residents were “extremely concerned” and “very concerned,” respectively. Approximately 23 percent were “somewhat concerned,” while only 9 percent were not at all concerned.

In general, the above results suggest that the average City of Whitewater resident’s level of concern about these two key issues is substantial (in both cases, closer to very concerned than somewhat concerned). The results also indicate that residents are roughly equally concerned about these two problems at the Lakes.

#### ***Effect of Concerns on Lake Enjoyment***

The survey also asked respondents to indicate how these two problems (aquatic plants and sediment in the Lakes) “affect (if at all) the quality of your enjoyment of Cravath and Trippe Lakes.” Respondents were asked to circle one number using a 5-point Likert scale with 1 = “Does not at all reduce my enjoyment of these Lakes,” 2 = “Reduces my enjoyment of these Lakes a little,” 3 = “Somewhat reduces my enjoyment of these Lakes,” 4 = “Reduces my enjoyment of these Lakes a lot,” and 5 = “Reduces my enjoyment of these Lakes extremely.”

The impact of aquatic plants on enjoyment of the Lakes (mean response = 3.28/5) was found to be slightly greater than the impact of sediment and its associated loss of depth and changes in water quality (mean response = 3.19/5). For both impacts, however, the mean response was between “somewhat reduces enjoyment” and “reduces enjoyment a lot.” In total, 48 percent of respondents indicated that aquatic plants reduced their enjoyment either

"a lot" (= 4) or "extremely" (= 5). Similarly, 47 percent indicated that sedimentation and its accompanying impacts in the Lakes reduced their enjoyment "a lot" or "extremely." For the majority of respondents (72 percent in the case of aquatic plants and 69 percent for sediment), these lake problems reduced their quality of enjoyment of Trippe and Cravath Lakes at least "somewhat" and more than "a little."

**Responses to Willingness to Pay Scenarios for Weed Control and Sediment Removal**

The next module of the survey comprised a key component of this research project. It addressed residents' Willingness-to-Pay (WTP) for programs that would improve the Lakes in relation to the two key issues referenced above (aquatic plants and sediments). This section began with the following text:

"The next several questions ask about your willingness to pay for conducting programs to improve Cravath and Trippe Lakes. In order to conduct the programs, money will need to be raised. This may be done by creating a "special tax district" affecting you and your neighbors living in the City of Whitewater. Money to fund the programs would be raised through increased property taxes, and all money raised would be used only for the lake programs. When answering, please consider your income, other things you spend money on, and the many other possible programs that could be funded by your local government."

Then, the survey included three WTP scenarios and questions related to the following three programs: 1) aquatic plant control, 2) sediment removal, and 3) a program combining both aquatic plant control and sediment removal. The scenarios/questions and corresponding survey results are discussed in turn in the following three sections.

*Willingness to Pay for the Aquatic Plant Control Program*

The scenario/question for aquatic plant control was as follows:

**PLEASE CONSIDER CAREFULLY THE FOLLOWING PROPOSED SCENARIO FOR WEED CONTROL AT CRAVATH AND TRIPPE LAKES:**

As mentioned above, Cravath and Trippe Lakes currently have undesirable weed species. Resource managers are considering a weed removal program. Weed removal may be done by hand pulling and raking or by using approved chemicals that do not affect humans or wildlife. Resource managers would use the method considered to be safest and most cost-effective, and the method would be repeated as necessary to control weeds. The program will:

- Enhance the habitat for fish, including those caught by recreational anglers
- Reduce unpleasant physical contact with weeds while engaging in water-based recreation such as swimming
- Result in visual improvements to the lakes
- Allow native plant species to return
- Improve the biological functioning of the lake

This weed control program by itself will NOT address the buildup of sediment in the lakes, which is discussed next.

How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to do the weed control program? (Circle one number.)

\$0	\$3	\$10	\$40	\$125	\$450	\$1,500	\$5,000
\$1	\$5	\$15	\$60	\$200	\$650	\$2,250	More than \$5,000
\$2	\$8	\$25	\$90	\$300	\$1,000	\$3,300	Don't know

Table 25

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR A WEED CONTROL PROGRAM FOR TRIPPE AND CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0.....	98	24.56
\$1-\$9.....	29	7.27
\$10-\$25.....	97	24.31
\$26-\$99 (Mean = \$67.46).....	74	18.55
\$100-\$300.....	57	14.29
\$301-\$999.....	7	1.75
\$1,000-\$5,000.....	3	0.75
More than \$5,000.....	1	0.25
Don't Know.....	33	8.27
Total	399	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

The results of the aquatic plant control program WTP scenario are shown in Table 25, in which the WTP responses are grouped into different bins (ranges, or categories). The mean WTP was \$67/yr. Among those with a nonzero WTP, the largest percentage of residents (24 percent) was willing to pay between \$10 per year and \$25 per year for aquatic plant control. In the next largest bin, 19 percent of residents were willing to pay between \$26 per year and \$99 per year. Note, however, that a sizeable percentage of respondents (25 percent) had zero bids; indicating that they would not be willing to pay for the aquatic plant control program.

*Willingness to Pay for the Sediment Removal Program*

The scenario/question for sediment removal was as follows:

**PLEASE CONSIDER CAREFULLY THE FOLLOWING PROPOSED SCENARIO FOR SEDIMENT REMOVAL AT CRAVATH AND TRIPPE LAKES:**

As mentioned above, Cravath and Trippe Lakes currently have large deposits of sediment. Resource managers are considering a sediment removal program. Sediment removal is done using precision land-based or water-based equipment, and the extracted sediment would be removed from the area and deposited safely outside of Whitewater. The method would be repeated as necessary to control sediment. The program will:

- Create deeper lakes
- Allow for better swimming and watercraft operation, including creating new areas that currently cannot be used for water-based recreation
- Reduce odor and increase water clarity

This Sediment Removal Program by itself will NOT reduce the undesirable weeds in the lakes, which was discussed previously.

How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to do the sediment removal program? (Circle one number.)

\$0	\$3	\$10	\$40	\$125	\$450	\$1,500	\$5,000
\$1	\$5	\$15	\$60	\$200	\$650	\$2,250	More than \$5,000
\$2	\$8	\$25	\$90	\$300	\$1,000	\$3,300	Don't know

The results of the sediment removal program WTP question are shown in Table 26. The mean WTP was \$72 per year, very close to, but slightly higher than, the WTP for the aquatic plant control program, which had a WTP of \$67 per year. Among those with a nonzero WTP, the largest percentage of residents (22.5 percent) was willing to pay between \$10 per year and \$25 per year for sediment removal. In the next largest bin, 19.5 percent of residents were willing to pay between \$26 per year and \$99 per year. Similar to the results for the aquatic plant control program scenario, a substantial percentage of respondents (25.5 percent) had zero bids; that is, they were not willing to pay for a sediment removal program at Trippe and Cravath Lakes.

Table 26

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR A SEDIMENT REMOVAL PROGRAM FOR TRIPPE AND CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0 .....	102	25.50
\$1-\$9 .....	23	5.75
\$10-\$25 .....	90	22.50
\$26-\$99 (Mean = \$72.27).....	78	19.50
\$100-\$300 .....	62	15.50
\$301-\$999 .....	7	1.75
\$1,000-\$5,000 .....	4	1.00
More than \$5,000 .....	1	0.25
Don't Know .....	33	8.25
<b>Total:</b>	<b>400</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table 27

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR BOTH WEED CONTROL AND SEDIMENT REMOVAL PROGRAMS FOR TRIPPE AND CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0 .....	93	23.54
\$1-\$9 .....	15	3.80
\$10-\$25 .....	62	15.70
\$26-\$99.....	78	19.76
\$100-\$300 (Mean = \$113.24) ...	90	22.78
\$301-\$999.....	19	4.81
\$1,000-\$5,000.....	7	1.77
More than \$5,000.....	2	0.51
Don't Know .....	29	7.34
<b>Total</b>	<b>395</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

*Willingness to Pay for a Combination of Both Programs (Aquatic Plant Control plus Sediment Removal)*

Finally, the survey asked respondents to indicate their WTP for a combination program that would involve both aquatic plant control and sediment removal. A motivation for posing this question was to explore whether the average City of Whitewater resident considers the two potential programs to be substitutes or complements. If they are considered to be complementary programs (the perceived benefits yielded from undertaking one of them would enhance the perceived benefits obtained from the other), then one might expect the WTP for the combined program to be greater than the sum of the two WTP values for the individual programs. On the other hand, if the programs are considered by residents to be substitutes for one another, then one would expect the WTP for the combined program to be less than the sum of the two WTP values for the individual programs.

The scenario/question for a combination program including both weed control and sediment removal was as follows:

**FINALLY, PLEASE CONSIDER CAREFULLY A COMBINATION OF BOTH PROGRAMS:**

Resource managers are considering BOTH weed control AND sediment removal. This will result in all of the benefits listed above for BOTH of these programs. How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to do both the weed control program and the sediment removal program? (Circle one number.)

- |     |     |      |      |       |         |         |                   |
|-----|-----|------|------|-------|---------|---------|-------------------|
| \$0 | \$3 | \$10 | \$40 | \$125 | \$450   | \$1,500 | \$5,000           |
| \$1 | \$5 | \$15 | \$60 | \$200 | \$650   | \$2,250 | More than \$5,000 |
| \$2 | \$8 | \$25 | \$90 | \$300 | \$1,000 | \$3,300 | Don't know        |

The results of the WTP question for the combination program (aquatic plant control plus sediment removal) are shown in Table 27. The mean WTP was \$113 per year. This is less than the sum of the mean WTP values for the two individual programs ( $\$67.46 + \$72.27 = \$139.73$ ), perhaps indicating that the average resident considers the aquatic plant control and sediment removal programs to be substitutes rather than complements. Alternatively, it may be the case that there is a limit on the total amount that the average resident is willing to pay for overall improvement of the Lakes, and that this is made manifest by the WTP values elicited when the possibility of a combination program is proposed.

Among those respondents with a nonzero WTP, the largest percentage (23 percent) was willing to pay between \$100 per year and \$300 per year for a combination program of aquatic control plus sediment removal. In the next largest bin, 20 percent of residents were willing to pay between \$26 per year and \$99 per year. Similar to the results for the individual programs, a substantial percentage of respondents (24 percent) had zero bids; they were unwilling to pay for a combination program of aquatic plant control plus sediment removal at Trippe and Cravath Lakes.

## SUMMARY

There were 432 responses to the approximately 2,803 questionnaires sent out. The numbers of responses (15 percent) were within the expected rate of response for a statistically valid survey. However, not all 432 respondents answered every question.

About one-half of the respondents were determined to live within one-half mile of the Lakes, based upon the mapping analysis associated with the coding of the survey instruments. In contrast, roughly the same percentage of respondents, when asked to estimate the distance to the nearest waterbody, thought that they lived between one-half mile and two miles away from the nearest Lake. About 90 percent of respondents reported that they did not live on either Lake. Somewhat more than twice as many respondents live closer to Cravath Lake (two-thirds of respondents) than the number living close to Trippe Lake (one-quarter of respondents).

The majority (88 percent) of respondents owned the residences in which they lived, with the average length of residence in the home being just under 15 years. The respondents, however, indicated that on average they lived in the City for just over 25 years. Most (94 percent) were year round residents. Of the seasonal residents, the average length of residence was about eight months annually, with summer and fall being the most likely months of residence.

About three-quarters of respondents reported visiting the Lakes during the previous year, with about one-half of those respondents visiting the Lakes between one and 10 times. The average number of visits to the Lakes during a year was reported to be about 30. About one-half of respondents reported visiting the lakes for community events, relaxation, and/or exercise. Boating was the activity in which the fewest numbers of respondents participated. Bird watching, fishing, and picnicking each occupied about 10 percent of the respondents.

The numbers of people visiting the Lakes were equally divided with respect to the mode of travel, with about 40 percent each using motor vehicles or travelling on foot.

One-quarter of respondents owned a boat, with (outboard motorized) fishing boats and canoes being the most common types of boats owned.

Two-thirds of respondents also visited other lakes in the area in the last year, with about two-thirds of these respondents doing so on between one and 10 occasions; the average number of visits to other lakes was about 15. Other lakes visited included a range of lakes across the state, but one-fifth of respondents indicated Whitewater Lake as their typical destination and about one-tenth indicated Geneva Lake as their destination.

A majority of respondents (slightly more than one-half) noted that they felt that enhanced or improved local environmental resources, numbers of shops and restaurants, agricultural lands, and schools were important. More efficient government and job loss were identified as highly important; recreational trails and security from terrorism were noted as being of lesser importance.

There was a moderate level of awareness of lake issues on average: lake issues included shallow depths, weeds, residential and commercial development in their vicinity, poor water clarity, and the role of agricultural runoff and the role of road salts on lake water quality.

There was a somewhat greater level of concern expressed by respondents with aquatic plants and sediment being of moderate concern. These issues also led to some reduction in the level of enjoyment experienced by lake users. About one half of the respondents also noted other problems of concern that affected their enjoyment of these resources.

With regard to the willingness to pay, the respondents were almost equally divided between those who did not want to pay (one-quarter of respondents indicating \$0) and those willing to pay \$10 to \$25, for either aquatic plant control or sediment removal. Insofar as willingness to pay for both aquatic plant control and sediment removal was concerned, about one-quarter also indicated that they did not want to pay, while an equal number indicated a willingness to pay between \$100 and \$300 for both of these activities (about \$115 being the average).

The median income level of respondents was about \$50,000 per year. Two-fifths of respondents had a post graduate degree, and one-fifth each had either a four-year degree or technical qualification. Almost all (95 percent) respondents indicated that they were not university students; the median age of respondents being about 55 years.

## Chapter IV

# ISSUES OF CONCERN

### INTRODUCTION

Cravath and Trippe Lakes and their associated tributary areas generally are able to support a variety of recreational opportunities—both through the Southern Unit of the Kettle Moraine State Forest, which extends from the City of Whitewater in Walworth County to the Village of Dousman in Waukesha County, and through the City of Whitewater Park and Recreation System—as well as some limited lake-oriented activities conducted on Trippe and Cravath Lakes. However, there are a number of existing and potential future problems and issues of concern that should be addressed in this lake protection plan to enhance these recreational opportunities and contribute to the quality of life experiences of the citizens of the City and the State. Based upon the inventory data included in Chapter II, these issues of concern can be determined to include: urban development and stormwater management, public recreational water use, sediment management and water quality, hydrology, aquatic plant management, and institutional development.

In addition to the issues of concern identified through this planning program, the University of Wisconsin-Whitewater conducted a mail drop questionnaire survey of the City of Whitewater households during 2009. This survey was designed to evaluate and assess the legitimate demands of the lake residents for access to water-based recreational opportunities and maintenance of residential ambience within the City. The survey instrument is included herein as Appendix C. The results of the survey have been summarized in Chapter III of this report. Based upon the responses to the questionnaire survey documented in Chapter III, the lake-oriented issues of concern to the City of Whitewater respondents include: public recreational water use, sediment management and water quality, and aquatic plant management.

This chapter utilizes the scientific data and information gathered from Cravath Lake and Trippe Lake to define from a technical base the major land and lake concerns. As stated in Chapter II of this report, this chapter is based on the premise that in-lake concerns are a reflection of land use and management in the drainage areas tributary to the Lakes. While it is true that lakes, as accreting systems, will trap and metabolize nutrients and other contaminants that are generated from the upstream watershed by natural processes, humans can and do accelerate this process of mobilizing contaminants and hastening the process of lake aging, or eutrophication. Further, because impoundments generally have larger watershed than natural lakes, these waterbodies are often subjected to much more rapid enrichment than their natural counterparts. In the cases of Trippe and Cravath Lakes, both of which are impoundments, this process was further accelerated by their urban location and the intensive use of the lakes as hydropower sources—in their early history, by their use as stormwater management systems—in their middle history, and as recreational and aesthetic resources—at the present time.

## **URBAN DEVELOPMENT AND STORMWATER MANAGEMENT**

Human activities upon the land surface result in the generation and mobilization of contaminants that are transported to lakes by rainfall, wind, and runoff. In urban areas, which generally include significant areas of impervious surface in the form of roadways, walkways, rooftops, and related stormwater conveyance systems, this mobilization and transport of contaminants can be enhanced in the absence of mitigating measures. Additionally, where such activities involve the exposure of the soil surface, larger contaminant loads result. Thus, erosion during construction and generation of nonpoint source pollutants associated with new urban development often represent potentially significant threats to water quality. The majority of lands within the total tributary area of Cravath and Trippe Lakes are under agricultural use or are designated as open lands. As these lands are developed, land disturbing activities associated with construction and redevelopment, along with increases in urban land uses and associated impervious surfaces, will increase runoff into the Lakes, subject to Chapter NR 151 guidance on runoff management, and may increase some nonpoint source pollutant loadings that represent a potentially significant threat to the Lake's water quality. Consequently, urban areas, urban development, and associated stormwater management are important issues to be considered.

## **PUBLIC RECREATIONAL WATER USE**

As evident from the results of the recreational surveys conducted by Southeastern Wisconsin Regional Planning Commission (SEWRPC) staff on Cravath and Trippe Lakes in 2008, and presented in Chapter II, the Lakes currently do not appear to be subjected to the same types and intensities of recreational use as many other lakes in Southeastern Wisconsin. These observations by Commission staff were supplemented by a further assessment of the present and forecast future recreational uses of Cravath and Trippe Lakes through a mail drop questionnaire survey, conducted in 2008 by the University of Wisconsin-Whitewater. This latter survey, as noted in Chapter III, was conducted pursuant to UWEX Lakes Partnership guidelines and current Wisconsin Department of Natural Resources (WDNR) protocols.

A majority of respondents (slightly more than one-half) to the survey noted that they felt that enhanced or improved local environmental resources, numbers of shops and restaurants, agricultural lands, and schools were important. More efficient government and job loss were identified as highly important; while recreational trails and security from terrorism were noted as being of lesser importance. There was a moderate level of awareness of lake issues: lake issues identified by respondents included shallow depths, weeds (aquatic plants), residential and commercial development in their vicinity, poor water clarity, and the role of agricultural runoff and the role of road salts on lake water quality. There was a somewhat greater level of concern expressed by respondents with weeds and sediment being of moderate concern. These issues also led to some reduction in the level of enjoyment experienced by lake users. About one half of the respondents also noted other problems of concern that affected their enjoyment of these resources.

Consequently, recreation and recreational use issues are important issues to be considered both from the point of view of the diagnostic analysis as well as from the point of view of the people of the City of Whitewater.

## **HYDROLOGY**

Lake issues of concern identified by respondents included shallow depths. The depths of the two impoundments were recurring themes during public meetings held throughout the process of formulating and executing this planning program. Considerable concern over the sources of the sediments being deposited in the Lakes was noted, both in terms of the loss of recreational use opportunities due to the presence of muck and in terms of the need to identify measures to minimize future inputs of sediment to the impoundments and remediate the sediments currently present in the basins of the Lakes.

The issue of loss of lake depth has several contributing factors, including that related to water as the transport medium for sediments eroded from the land surface within the drainage area and transported to the Lakes. It is also associated with the growth, death, and decay of aquatic plants within the Lake basins, which in turn is related

to the water quality status, presence of abundant quantities of plant nutrients, and shallow nature of the Lakes. In this regard, shallow lakes, of which Trippe and Cravath Lakes are representative, are characterized by abundant growths of aquatic plants. This latter issue of concern is elaborated below.

For the purposes of this plan element, it is the former issue of concern, sediment transported and deposited in the Lakes from their watersheds—and the associated loss of lake depth, that is of interest, especially since it engages stormwater management concerns of the City of Whitewater.<sup>1</sup> Consequently, hydrological issues are important issues to be considered.

## SEDIMENT MANAGEMENT AND WATER QUALITY

Lake issues of concern identified by respondents, together with loss of lake depth, included poor water clarity, and the role of agricultural runoff and the role of road salts in degrading lake water quality. Related to the hydrological concerns noted above, the influx of sediments and contaminants, and resultant decline in water quality, are the manifestations of poor quality water identified by the majority of the respondents to the community questionnaire survey. In this regard, turbid water and an abundance of rooted, floating leaved, and emergent aquatic plants in the two lakes are classic characteristics of shallow lakes.

The degree to which these symptoms are related to historical management practices, such as the discharge of wastewaters noted in Chapter II, have relevance for the determination of possible remedial measures, a principle example of which would include dredging the accumulated sediments. While this type of remedial measure entails significant costs and involves potentially costly and time-consuming permitting—required pursuant to Chapter 30 of the *Wisconsin Statutes*—and sediment testing—required pursuant to Chapter NR 347 of the *Wisconsin Administrative Code*, Sediment Sampling and Analysis, Monitoring Protocol and Disposal Criteria for Dredging Projects—sediment management is an important consideration in terms of maintaining water quality conditions in the Lakes that are consistent with the desired uses of the Lakes, as expressed by respondents to the questionnaire survey summarized in Chapter III. Consequently, sediment management and water quality are important issues to be considered.

## AQUATIC PLANT MANAGEMENT

Lake issues of concern identified by respondents included weeds (aquatic plants); among these aquatic plants, the presence of Eurasian water milfoil (*Myriophyllum spicatum*) and curly-leaf pondweed (*Potamogeton crispus*) in the basins of Cravath and Trippe Lakes is an important issue of concern. These invasive aquatic plants often outcompete native aquatic plants and, without management, frequently dominates the plant communities in the lakes of southeastern Wisconsin, to the detriment of native plant species and their associated fish and wildlife populations.

There also is increasing evidence that Eurasian water milfoil will hybridize with native or northern water milfoil, increasing the invasive nature of this genus.<sup>2</sup> The recent aquatic plant surveys of Cravath and Trippe Lakes conducted by SEWRPC staff suggest that Eurasian water milfoil has achieved sufficient abundance within the Lakes that it is interfering with human recreational and aesthetic use of the Lakes as natural resources. As discussed in Chapter II and documented in Chapter III, aquatic plants in general and Eurasian water milfoil in particular are widespread in the Lakes and, therefore, aquatic plant management is an issue that should be considered.

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<sup>1</sup>The City of Whitewater is not an MS4 municipality designated pursuant to Section NR 216.02(3) of the Wisconsin Administrative Code.

<sup>2</sup>Michael L. Moody and Donald H. Les, "Evidence of Hybridity in Invasive Watermilfoil (*Myriophyllum*) Population," PNAS, Volume 99, No. 23, pages 14867-14871, November 2002.

## INSTITUTIONAL DEVELOPMENT

As the Cravath and Trippe Lakes community seeks a more active role in the management of the Lakes, it is essential that an adequate institutional base to support such activities be developed. Currently, the community-based lake management activities are being carried out by the City of Whitewater. To facilitate the conduct of this institutional organization analysis, the City has formed an *Ad Hoc* Lake Committee as an interim organization. Pursuant to Section 62.23(18) of the *Wisconsin Statutes*, cities "may improve lakes and rivers within the city and ... may make improvements therein throughout the county in which such city shall be located in aid of navigation, and for the protection and welfare of public health and wildlife." However, the Wisconsin Legislature also has established other mechanisms for the purpose of lake and stream management. Public lake organizations may be established through the creation of special purpose units of government pursuant to Chapter 33 of the *Wisconsin Statutes*, as public inland lake protection and rehabilitation districts, or, pursuant to Section 66.0827 of the *Wisconsin Statutes*, as utility districts, especially stormwater utilities. Private lake organizations include nonstock, not-for-profit corporations established under Chapter 181 of the *Wisconsin Statutes*. The specific type(s) of organization(s) to be created should be based upon the decision of the community. Consequently, institutional development is an important issue to be considered.

## Chapter V

# ALTERNATIVE AND RECOMMENDED LAKE PROTECTION AND MANAGEMENT PRACTICES

### INTRODUCTION

Cravath and Trippe Lakes generally contain a robust, though not highly diverse, aquatic plant community capable of supporting a warmwater fishery, albeit with some areas that suffer impairment of recreational opportunities and other lake-oriented activities due to an overabundance of aquatic macrophytes. For example, in those areas of the Lakes where Eurasian water milfoil (*Myriophyllum spicatum*) is abundant, certain recreational uses are limited, the aesthetic quality of the Lakes is impaired, and in-lake habitat degraded. The plant primarily interferes with recreational boating activities by encumbering propellers, clogging cooling water intakes, snagging paddles, and slowing sailboats by wrapping around keels and control surfaces. The plant also causes concern among swimmers who can become entangled within the plant stalks. Thus, without control measures, these areas can become problematic to navigation, fishing, and swimming. Native aquatic plants, generally found at slightly deeper depths, pose fewer potential problems for navigation, swimming, and fisheries, and generally have attributes that sustain a healthy fishery. Many native aquatic plants provide fish habitat and food resources and offer shelter for juvenile fishes and young-of-the-year fish.

In this chapter, alternative and recommended actions for addressing the issues of concerns described in Chapter IV are presented. These measures are focused primarily on those measures which can be implemented by the City of Whitewater, with lesser emphasis given to those measures which are applicable to other agencies having jurisdiction within the area tributary to the Lakes.

### URBAN DEVELOPMENT AND STORMWATER MANAGEMENT

#### Background

The City of Whitewater was issued a general permit pursuant to Chapter NR 216 stormwater discharge permitting requirements on November 1, 2006. This designation is based on the Federal decennial census and applicable to the owner or operator of a municipal separate storm sewer system (MS4) serving incorporated areas with a population of 100,000 or more, and requires that owner or operator to implement measures to reduce total suspended solids loads, including the conduct of informational and educational programming, elimination of cross-connections between sanitary and storm sewers, reduction of construction site erosion, and implementing street-sweeping and leaf litter collection programs. Chapter II of this report has shown that planned future development within the tributary areas to both Trippe and Cravath Lakes will become increasingly urbanized during the planning period. As this shift in land use occurs, stormwater management will become increasingly important to protecting or rehabilitating the water quality of the Lakes.

The conversion of rural agricultural lands draining to both Trippe and Cravath Lakes to urban land uses and other land uses such as those associated with the Southern Unit of the Kettle Moraine State Forest and other conservancy lands being acquired by private conservation organizations will have the effect of reducing the current sediment and phosphorus loads to the Lakes, as noted in Chapter II. While conversion of agricultural lands to urban land uses can introduce other contaminants to the Lakes, as documented in Chapter II, such conversions will be subject to State stormwater management requirements set forth in Chapter NR 151 of the *Wisconsin Administrative Code*. These requirements limit the change in runoff from urban land development sites, and consequently modify the conveyance of contaminants from the land surface into waterways.

While urbanization brings a decrease in some pollutant loadings, urban runoff adds additional contaminants of concern to the mix of pollutants entering the Lakes, specifically metals as shown in Tables 9 through 12 in Chapter II. These contaminants are generally highly reactive with sediment particles, so the sediment retention requirements of Chapter NR 151 of the *Wisconsin Administrative Code* are likely to retain some of the additional urban contaminants of concern. Thus, stormwater management has been determined to be an important concern facing Cravath and Trippe Lakes.

Water quality is one of the key parameters used to determine the overall health of a waterbody and its ability to support a varied array of aesthetic and recreational uses, and other uses such as navigation, water supply, and hydropower generation—many of Wisconsin's impounded waterbodies began life as working waterways supporting grist or saw mills, as in the case of Trippe and Cravath Lakes. The importance of good water quality can hardly be underestimated, as it impacts nearly every facet of the natural balances and relationships that exist in a lake between the myriad of abiotic and biotic elements present, as well as influencing and determining, to a large extent, the human interactions with the aquatic environment. Because of the importance water quality plays in the functioning of a lake ecosystem and the human uses thereof, careful monitoring of this lake element represents a fundamental management tool. Not only does monitoring allow for an assessment of lake "health," it provides early warning of imbalances in the aquatic ecosystem so that active interventions can be undertaken in a timely (and cost-effective) manner. In the cases of Cravath and Trippe Lakes, water quality data, such as those summarized in Chapter II of this report, form the basis for the identification for the remedial measures set forth herein.

## **Alternative Management Measures**

### ***Urban Stormwater Management***

Stormwater management, and the control of nonpoint source pollution from urban and urbanizing areas, has been recognized as an important issue facing the State of Wisconsin. In the case of urban lakes, such as Trippe and Cravath Lakes, urban stormwater management is an essential element in the protection and rehabilitation of water quality. Alternative stormwater management measures, summarized in Appendix E, range from relatively low-cost informational programming, informing citizens of "good housekeeping practices" that can be implemented through small changes in household behavior, to the construction of stormwater treatment systems, which have high construction and operation costs. While these latter practices have been applied in various parts of the world—such as in the case of the Wahnbach Reservoir in Germany,<sup>1</sup> the alternative practices considered for use by the City of Whitewater stop short of these comprehensive treatment systems, focusing instead on subregional stormwater ponds, infiltration, and informational programming.

2009 Wisconsin Acts 9 and 63, enacted by the Wisconsin Legislature have contributed to reducing the discharge of phosphorus containing substances into the environment. 2009 Wisconsin Act 9 has restricted the use and sale of fertilizer containing phosphorus and other turf fertilizers within the State. Under the provisions of this Act, which created Section 94.643 of the *Wisconsin Statutes*, the application of fertilizers on urban lands containing phosphorus is limited to those specific cases where soil tests document a need for such soil amendments. In

<sup>1</sup>See S.-O. Ryding and W. Rast, *The Control of Eutrophication of Lakes and Reservoirs, Unesco Man and the Biosphere Series, Volume 1, Parthenon Press, Carnforth, 1989.*

Southeastern Wisconsin, few, if any, soils fall within this category.<sup>2</sup> This has meant that much of the fertilizer applied prior to the adoption of 2009 Wisconsin Act 9 was washed off the land surface and into the Region's waterways.<sup>3</sup> 2009 Wisconsin Act 63 amended Sections 100.28 (2) (a) and (b) and 100.28 (2m) (a) and (b) of the *Wisconsin Statutes* to restrict the amount of phosphorus in certain, nonhousehold cleaning agents. As shown in Appendix E, these measures are likely to reduce nonpoint source phosphorus inputs to the Lakes from urban areas by up to 5 percent.

The use of street sweeping, catch basin cleaning, and seasonal leaf and clipping collection measures are additional measures that are being implemented by the City of Whitewater. These measures have been combined with public informational programming to alert residents to dates and times of collections, recommended yard care practices, and related issues. These practices also can help to reduce nonpoint source phosphorus inputs to the Lakes from urban areas by up to 5 percent, as shown in Appendix E.

As of October 1, 2007, the City of Whitewater, through City of Whitewater Ordinance Chapter 16.10, Stormwater Utility and Management Services, created a Stormwater Utility tasked with the "collection and disposal of stormwater," providing "services to all properties within the City of Whitewater and the surrounding areas, including those properties not currently served by the system." The Ordinance also provided for a system or charges to offset the "cost of operating and maintaining the city stormwater management system and financing necessary repairs, replacements, improvements and extensions thereof should, to the extent practicable, be allocated in relationship to the services received from the system," in order to protect the health, safety and welfare of the public. In support of the implementation of this Ordinance, the City also promulgated guidelines for the implementation of erosion control and stormwater management practices in the City. These measures, as shown in Appendix E, can reduce nonpoint source pollution in runoff by 10 percent or more.<sup>4</sup>

#### ***Water Quality Monitoring***

The University of Wisconsin-Extension (UWEX) operates the Citizen Lake Monitoring Network (CLMN), formerly the Wisconsin Department of Natural Resources (WDNR) Self-Help Monitoring Program. Volunteers enrolled in this program gather data at regular intervals on water clarity through the use of a Secchi disk. Because pollution tends to reduce water clarity, Secchi-disk water clarity measurements are generally considered one of the key parameters in determining the overall quality of a lake's water, as well as a lake's trophic status. Secchi-disk measurement data are added to the WDNR-sponsored Surface Water Information Management System (SWIMS) data base containing lake water quality information for most of the lakes in Wisconsin and is accessible on-line through the WDNR website. The UWEX also offers an Expanded Self-Help Monitoring Program that involves collecting data on several key physical and chemical parameters in addition to the Secchi-disk measurements. Under this program, samples of lake water are collected by volunteers at regular intervals and analyzed by the State Laboratory of Hygiene (SLOH). Data collection is more extensive and, consequently, places more of a burden on volunteers. Since 2004, a limited amount of data has been collected on an intermittent basis as part of the abovedescribed programs on Trippe Lake; no data have been recorded for Cravath Lake.

<sup>2</sup>*SEWRPC Planning Report No. 8, Soils of Southeastern Wisconsin, June 1966.*

<sup>3</sup>*See U.S. Geological Survey Water-Resources Investigations Report 02-4130, Effects of Lawn Fertilizer on Nutrient Concentration in Runoff from Lakeshore Lawns, Lauderdale Lakes, Wisconsin, July 2002.*

<sup>4</sup>*See SEWRPC Technical Report No. 18, State of the Art of Water Pollution Control in Southeastern Wisconsin, Volume 3, Urban Storm Water Runoff, July 1977; see also University of Wisconsin-Extension Publication No. G3691-P, The Wisconsin Storm Water Manual: Technical Design Guidelines for Storm Water Management Practices, 2000; and, Wisconsin Department of Natural Resources, Wisconsin Construction Site Best Management Practice Handbook, 1994, and associated Storm Water Construction and Post-Construction Technical Standards: <http://dnr.wi.gov/runoff/stormwater/techstds.htm>.*

In addition to the UWEX volunteer-based CLMN program, the University of Wisconsin-Stevens Point (UWSP) also offers several volunteer-conducted water quality sampling programs. Under these latter programs, volunteers collect water samples and send them to the UWSP Water and Environmental Analysis Laboratory (WEAL) for analysis. The U.S. Geological Survey (USGS) also offers an extensive water quality monitoring program under their Trophic State Index monitoring program. USGS field personnel conduct a series of approximately five monthly samplings beginning with the spring turnover. Samples are analyzed by the SLOH for an extensive array of physical and chemical parameters.

The basic UWEX CLMN program is available at no charge, but does require volunteers to be committed to taking Secchi-disk measurements at regular intervals throughout the spring, summer, and fall. The Expanded Self-Help Program requires additional commitment by volunteers to take a more-extensive array of measurements and samples for analysis, also on a regular basis.<sup>5</sup> As with any volunteer-collected data, despite the implementation of standardized field protocols, individual variations in levels of expertise due to background and experiential differences, can lead to variations in data and measurements from lake-to-lake and from year-to-year for the same lake, especially when volunteer participation changes. The UWSP turnover sampling program requires only a once-a-year sampling, thereby requiring a smaller time commitment by the volunteers, but, there is a modest charge for the laboratory analysis, and, because sampling is performed by volunteers, is subject to those variations identified above. Additionally, since samples need to be taken as closely as possible to the actual turnover period, which occurs only during a relatively short window of time, volunteers need to monitor lake conditions as closely as possible to be able to determine when the turnover period is occurring. The USGS program does not require volunteer sampling. All sampling and analysis is provided by USGS personnel using standardized field techniques and protocols. As a result, a more standardized set of data and measurements may be expected. However, the cost of the USGS program is significantly higher than the UWSP program, even with State cost-share availability.

### **Recommended Management Measures**

Beyond the actions indicated above as ongoing implementation of the City of Whitewater Stormwater Ordinance requirements by the City of Whitewater Stormwater Utility,<sup>6</sup> including implementation of the public awareness activities associated with these Ordinance requirements,<sup>7</sup> it is recommended that the landowners immediately adjacent to the Lakes be encouraged to adopt shoreland landscaping practices designed to maintain the ecological integrity of the shorelands.<sup>8</sup> These practices also can be applied in areas around stormwater management basins elsewhere in the drainage areas tributary to the Lakes.<sup>9</sup> These additional actions could contribute to reducing nonpoint source pollution by a further 10 percent.

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<sup>5</sup>The WDNR offers Small Grant cost-share funding within the Chapter NR 190 Lake Management Planning Grant Program that can be applied for to defray the costs of laboratory analysis and sampling equipment.

<sup>6</sup>The City ordinance has established the goal of reducing sediment suspended in runoff by 40 percent.

<sup>7</sup>Outreach activities relating to stormwater management are being conducted under the auspices of the Rock River Stormwater Group, a consortium of 15 organizations within the Rock River Basin, on the theme of "Clean Waters, Bright Future." See:

[http://www.ci.whitewater.wi.us/index.php?option=com\\_content&view=category&layout=blog&id=149&Itemid=545](http://www.ci.whitewater.wi.us/index.php?option=com_content&view=category&layout=blog&id=149&Itemid=545).

<sup>8</sup>SEWRPC riparian buffer guide, "Managing the Water's Edge: Making Natural Connections," May 2010. See [www.sewrpc.org/data](http://www.sewrpc.org/data) and resources.

<sup>9</sup>University of Wisconsin-Extension Publication No. GWQ045, Storm Water Basins: Using Natural Landscaping for Water Quality & Esthetics [sic]—A Primer on Planting and Managing Native Landscaping for Storm Water Basins, 2005.

In order to monitor the responses of the Lakes to improved stormwater management and nonpoint source pollution control practices, it is recommended that the City of Whitewater participate in the CLMN program sponsored by the UWEX for both Cravath and Trippe Lakes. Data gathered as part of this program should be presented annually by the volunteers at meetings of the Whitewater City Council, where the citizen monitors could be given some recognition for their work. The Lake Coordinator of the WDNR, Southeast Region, could assist in enlisting more volunteers in this program. The information gained at first-hand by the public from participation in this program can increase the credibility of the proposed changes in the nature and intensity of use to which the Lakes are subjected.

It is further recommended that the City of Whitewater consider participating in one of the other more comprehensive water quality programs: the UWEX Expanded Self-Help Program on an annual basis or, either the UWSP WEAL lake sampling program or USGS program on a periodic basis every three to five years. The use of either the UWSP or USGS programs would be especially valuable as a means to attain a comprehensive water quality determination on a periodic basis while maintaining yearly CLMN data.

## **PUBLIC RECREATIONAL WATER USE**

### **Background**

As noted in Chapter III of this report, the City of Whitewater community expressed a moderate level of awareness of lake issues in general, including awareness of depth, aquatic plants, urban development, water clarity, and the role of agricultural runoff and road salts on lake water quality. The community had a somewhat greater level of concern with respect to aquatic plants and sediments related to a reduction in the level of enjoyment experienced by lake users. About one half of the respondents also noted other issues of concern that affected their enjoyment and use of these resources.

Public recreational access to the two Lakes is focused on City parklands having lake frontage. These two parks offer the following amenities:<sup>10</sup>

- Trippe Lake Park—“Located along Trippe Lake in the southwest quadrant of the City, activities at this park include volleyball, ice skating, boating, fishing, cross country skiing, and swimming. This park also includes an open shelter, a bath house, a picnic area, a small orchard, play equipment, and restroom facilities.”
- Cravath Lake Waterfront Park—“This park is located along the north side of Cravath Lake and near the south side of the downtown. The Lakefront Center community building is located here as well as an outdoor performance stage, boat launch, lakefront promenade, and a rail underpass to Lake Street.”

### **Alternative Management Measures**

With respect to recreational boating, current public recreational boating standards as set forth in Sections NR 1.91(4) and NR 1.91(5) of the *Wisconsin Administrative Code*, establish minimum and maximum standards for public boating access development, respectively, to qualify waters for resource enhancement services provided by the WDNR. As noted in Chapter II, both Cravath and Trippe Lakes are deemed to have adequate public access, although the types of watercraft are limited by the lack of water depth and abundant growth of aquatic plants. Chapter NR 1 of the *Wisconsin Administrative Code* sets maximum and minimum standards based upon available parking facilities for car-top and car-trailer units. Although currently considered adequate, the access sites should continue to be periodically monitored to ensure consistency with public recreational boating access standards.

<sup>10</sup>*City of Whitewater, City of Whitewater Comprehensive Plan, 2030, February 2010.*

In addition to ensuring continued eligibility for State of Wisconsin natural resources enhancement funds, public access points on the Lakes form an initial point of contact between the community and the Lakes. Consequently, placement of signage and related notices regarding issues of concern—such as nonnative species—is recommended. The WDNR has advisory notices regarding species such as Eurasian water milfoil and zebra mussel available upon request, and encourages placement of this signage at appropriate locations around the public recreational boating access sites. These sites also form excellent points of contact for disseminating water quality data, such as the periodic Secchi disc transparency measurements recommended above. Where these sites include public beaches and other amenities through which people may come into full- or partial-body contact with the water, placement of signage relating to coliform bacterial levels is also recommended.

Public access areas can be used to showcase good shoreland management practices and other shoredscaping techniques (see below) that are recommended for replication elsewhere on the Lake shores. Given the large length of shoreline of both Trippe and Cravath Lakes that is in public ownership, or under the private ownership of the Hillside Cemetery, installation of shoreland buffers comprised of native vegetation would form not only an attractive border to the City's amenities, but also encourage other property owners to adopt similar shoredscaping practices.

#### **Recommended Management Measures**

In addition to the existing public recreational boating access, it is recommended that appropriate signage at the public recreational boating access site be provided to alert users of Eurasian water milfoil, zebra mussels, and other nonnative invasive species. Such information should also be included in the City's informational programming, consistent with the aquatic plant management measures set forth in this plan. Should public use of the boat launch facilities at either Cravath Lake or Trippe Lake increase significantly, the City also might consider participating in the University of Wisconsin-Extension (UWEX) Clean Boats-Clean Waters Program.

### **IN-LAKE SEDIMENT MANAGEMENT AND HYDROLOGY**

#### **Background**

A recurring theme at the various public meetings convened by the City of Whitewater *Ad Hoc* Lakes Committee meeting was the lack of depth within the Lake basins, and the loss of recreational boating opportunities. This concern also is expressed by the citizens of the City through the community-based questionnaire survey, summarized in Chapter III of this report.

As noted in Chapter III, the issue of sediment in the Lakes was noted to be as a major issue of concern by the respondents to the community survey, scoring 3.59 out of a total of 5.0. Respondents not only indicated that poor water clarity was the most significant issue of concern, ranking 2.53 out of a score of 3.0, but also that agricultural runoff and shallow depths were important issues of concern, ranking 2.32 and 2.28 out of a score of 3.0, respectively. Additionally, sanding and salting of roads was considered a major issue of concern that could contribute particulates to the Lakes, ranking 2.24 out of a score of 3.0. This loss of depth was considered to be an issue that reduced the enjoyment of the Lakes by the respondents "by a lot," ranking 3.19 out of a score of 5.0, although the presence of abundant growths of aquatic plants was noted as a slightly more significant concern with respect to loss of enjoyment, scoring 3.28 out of a total of 5.0. Nevertheless, respondents were slightly more willing to pay for the removal of depth-related limits to navigation than they were for aquatic plant management, indicating that, on average, they would be willing to pay \$72 per year to support a remediation program.

Based upon the historical sources documented in Chapter I, it is likely that the Lakes were never deep lakes. However, as accreting systems within what historically was an agricultural landscape, it is equally likely that there has been significant sediment retention in the impoundments since Trippe and Cravath Lakes were formed in the 1800s. As the lands within the Whitewater Creek subwatershed have been incorporated into the State Forest, the contribution of soils from the watershed surrounding the Creek will have declined proportionately, as forested lands are considered to be well-protected from erosion as a consequence of the tree canopy, growth of shrubs, and presence of grasses that are characteristic of woodlands. Consequently, to a significant extent, sources of sediment within the Whitewater Creek subwatershed can be considered to have been controlled to a significant

degree. Such control of sediment sources within the subwatershed is a prerequisite to the implementation of measures to remediate sediment deposition in Trippe Lake. This is not the case within the Spring Brook subwatershed, although it is estimated that land conversion from agricultural land uses to urban land uses is likely to have reduced sediments loading from this subwatershed. In this case, application of the stormwater management and agricultural best management practices noted above are expected to minimize sediment export from these lands.

### **Alternative Management Measures**

#### ***Erosion Control and Shoreline Stabilization***

Shoreline erosion was not evident around the Lakes, and no serious problems were identified, although a survey of streambanks within the Spring Brook subwatershed did result in the identification of some areas of bank instability. The shorelands of Trippe and Cravath Lakes, themselves, were well vegetated. Consequently, shoreland maintenance activities should focus on the provision of vegetative buffer strips immediately adjacent to the Lakes as the simplest, least costly, and most natural method of reducing shoreline erosion (see Figure 1). This technique employs natural vegetation, rather than maintained lawns, within five to 10 feet of the lakeshore or the establishment of emergent aquatic vegetation from two to six feet lakeward of the eroding shoreline. Aquatic species, such as cattails (*Typha* spp.) and common reed (*Phragmites communis*), may be suitable in the littoral areas, while taller grasses, forbs, and shrubs also should be encouraged on the shoreline. Some transplanting or seeding with carefully chosen indigenous plant types can decrease the time of this succession of plant species. Desirable plant species which may be expected and encouraged to invade the buffer strip, or which could be planted, include arrowhead (*Sagittaria latifolia*), cattail (*Typha* spp.), common reed (*Phragmites communis*), water plantain (*Alisma plantago-aquatica*), bur-reed (*Spartanium eurycarvum*), and blue flag (*Iris versicolor*) in the wetter areas; and jewelweed (*Impatiens biflora*), elderberry (*Sambucus canadensis*), giant goldenrod (*Solidago gigantea*), marsh aster (*Aster simplex*), red-stem aster (*Aster vunicus*), and white cedar (*Thuja occidentalis*) in the drier areas. In addition, trees and shrubs such as silver maple (*Acer saccharinum*), American elm (*Ulmus americana*), black willow (*Salix nigra*), and red-osier dogwood (*Cornus stolonifera*) could become established. These plants will develop a more extensive root system than the lawn grass and the above-ground portion of the plants will protect the soil against the erosive forces of rainfall and wave action. A narrow path to the lake can be maintained as lake access for boating, swimming, fishing, and other activities. A vegetative buffer strip would also serve to trap nutrients and sediments washing into the lake via direct overland flow. This alternative would involve only minimal cost.

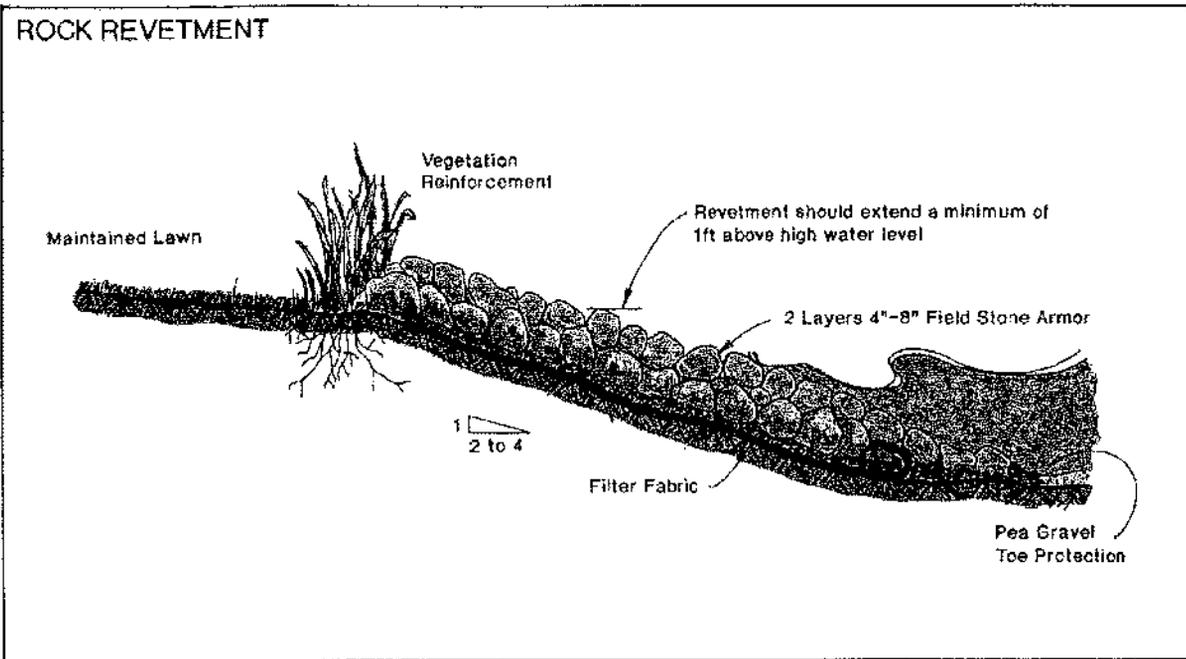
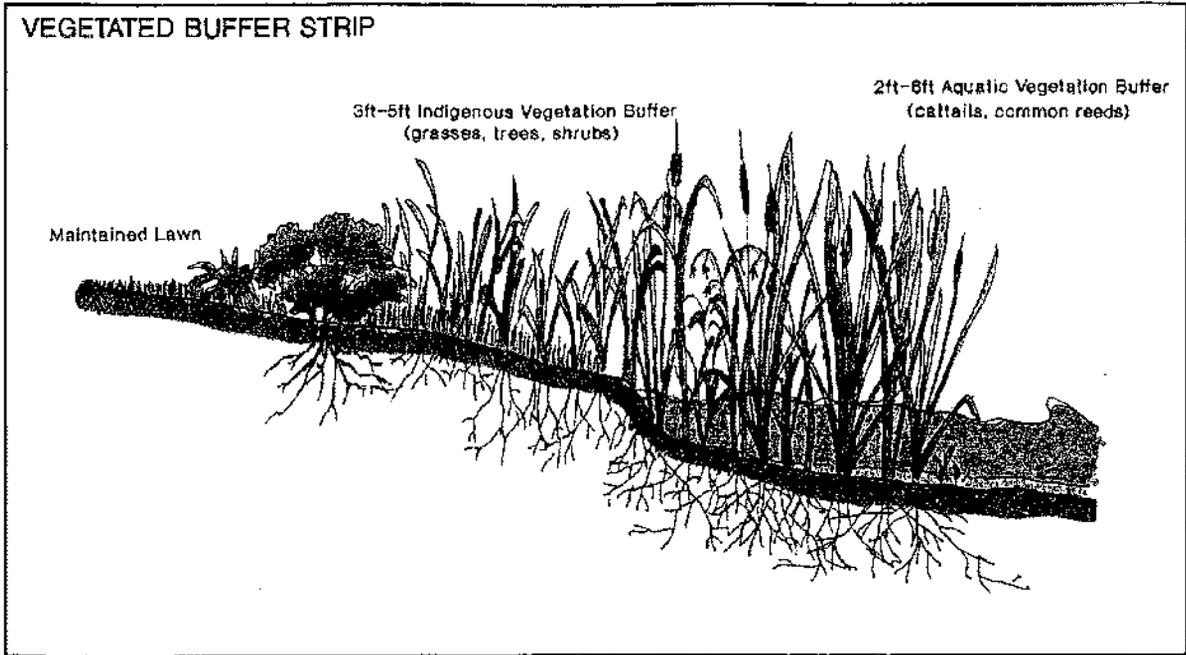
Rock riprap is a highly effective method of shoreline erosion control applicable to many types of erosion problems in areas highly susceptible to wind and wave erosion, especially in areas of low banks and shallow water. Use of this technique, however, is limited to areas with exposure to higher intensity wind waves, ice action, or boat wakes, pursuant to Chapter NR 328 of the *Wisconsin Administrative Code*. Given the relatively short wind fetch on the Lakes and the lack of high speed recreational boating traffic, use of this method is unlikely to be permitted by the WDNR. The advantages of this technique, which involves the shaping of the shoreline slope, the placement of a porous filter material, such as sand, gravel, or pebbles, on the slope and the placement of rocks on top of the filter material, are that the structure is highly flexible and not readily weakened by movements caused by settling or ice expansion, it can be constructed in stages, and it requires little or no maintenance. The disadvantages of a rock revetment are that it limits the use of the immediate shoreline in that the rough, irregular rock surfaces are unsuitable for walking; a relatively large amount of filter material and rocks needs to be transported to the lakeshore; and excavation and shaping of the shore slope may cause temporary disruptions and contribute sediment to the lake. Even if improperly constructed, the revetment may fail because of washout of the filter material. A rock revetment constructed along a 300 foot shoreline by a private contractor would involve a total capital cost of about \$7,500, or about \$25 per linear foot.

#### ***Dredging***

Sediment removal is a restoration measure that is carried out using a variety of techniques, both land-based and water-based, depending on the extent and nature of the sediment removal to be carried out. For large-scale applications, a barge mounted hydraulic or cutter-head dredge is generally used. For smaller-scale operations a

Figure 1

RECOMMENDED ALTERNATIVES FOR SHORELINE EROSION CONTROL



NOTE: Design specifications shown herein are for typical structures. The detailed design of shoreline protection structures must be based upon analysis of local conditions.

Source: SEWRPC.

shore-based drag-line system is typically employed. Both methods are expensive, especially if a suitable disposal site is not located close to the dredge site. Costs for removal and disposal begin at between \$15 and \$20 per cubic yard; with the cost of sediment removal alone beginning at about \$5.00 per cubic yard. Effectiveness of dredging varies with the effectiveness of watershed controls in reducing or minimizing the sediment sources. Federal and State permits are required for use of this option. A recommended checklist provided by the WDNR is included as Appendix E.

Dredging is the only restoration technique that directly removes the accumulated products of degradation and sediment from a lake system and can return a lake to a younger "age." If carried to the extreme, dredging can be used to, in effect, construct a new lake with a size and depth to suit the management objectives. Dredging has been used in other lakes to increase water depth; remove toxic materials; decrease sediment oxygen demand, preventing fish winterkills and nutrient recycling; and decrease macrophyte growth. The main objective of dredging Trippe and Cravath Lakes would be to increase water depth to permit a greater range of recreational activities and increased public safety.

In part, this increase in depth would marginally reduce the areal extent of macrophyte growth. The theoretical maximum depth of macrophyte colonization in the Lakes, under present conditions of water clarity, is about one and one-half feet.<sup>11</sup> To reduce the extent of macrophyte growth—and enhance the range of recreational uses, sections of the bottom would have to be deepened to greater than this depth by dredging. Dredging may have serious, though generally short term, adverse effects on the Lakes. These adverse effects could include increased turbidity caused by sediment resuspension, toxicity from dissolved constituents released by the dredging, oxygen depletion as organic sediments mix with the overlying water, water temperature alterations, and destruction of benthic habitats. There may also be impacts at upland spoil disposal sites, such as odor problems, restricted use of the site, and disturbances associated with heavy truck traffic. In the longer term, disruption of the lake ecosystem by dredging can encourage the colonization of disturbed portions of the lakebed by less desirable species of aquatic plants and animals, including Eurasian water milfoil, which is present in the Lakes. While dredging results in an immediate increase in lake depth, such increases may be short-lived if the sources of sediment being deposited in the Lakes are not controlled within the drainage areas tributary to the Lakes. As noted above, while the sediment loading to Trippe Lake has been largely controlled as a result of the incorporation of large portions of that Lake's watershed into the State Forest, the sediment load reaching Cravath Lake comes primarily from urban and agricultural lands tributary to the Spring Creek. Further sediment is generated from streambank erosion. All of these sources are subject to effective control through the adoption, implementation, and maintenance of recommended control measures within the watershed, which measures should be considered the primary means of limiting sediment accumulation in Cravath Lake prior to consideration being given to dredging. Only after such practices are implemented should major sediment removal projects be considered, and then only in limited areas of the Lake.

Dredging of lakebed material from navigable waters of the State requires a WDNR Chapter 30 permit and a U.S. Army Corps of Engineers Chapter 404 permit. In addition, current solid waste disposal regulations define dredge material as a solid waste. Chapter NR 180 of the *Wisconsin Administrative Code* requires that any dredging project of over 3,000 cubic yards submit preliminary disposal plans to the WDNR for review and potential solid waste licensing of the disposal site. Because sodium arsenite was applied to Trippe Lake in the 1950s and 1960s, as discussed in Chapter II, sediment samples may need to be analyzed to determine the extent and severity of any residual arsenic contamination.

Dredging of both Trippe and Cravath Lakes could be accomplished with several different types of equipment, including a hydraulic cutterhead dredge mounted on a floating barge; or bulldozer and backhoe equipment if part of the Lake were drained; or a clamshell, or bucket, dragline dredge from the shoreline. Hydraulic cutterhead

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<sup>11</sup>North American Lake Management Society, *Terrene Institute, and U.S. Environmental Protection Agency. Managing Lakes and Reservoirs, Third Edition, 2001, page 268.*

dredging is the most commonly employed method in the United States. The dredge is typically a rotating auger or cutterhead on the end of a ladder that is lowered to the sediment-water interface. Sediment excavated by the cutterhead is pumped as a slurry of 10 to 20 percent solids by a centrifugal pump to the disposal site. This pumping usually limits the distance between the lake and disposal site to less than a mile, even using intermediate booster pumps. Because of the large volume of slurry produced, a relatively large disposal site is typically required. Water returned from the disposal site, whether returned to the lake or a stream, would have to meet effluent water quality standards of the State and would be subject to State permitting.

Assuming dredging of about one-third of the lake areas in order to increase the depth by about two feet, about 40 acre-feet or about 64,500 cubic yards of material would be dredged from Cravath Lake and a further 75 acre-feet or about 121,000 cubic yards of material from Trippe Lake. At a cost of about \$25 per cubic yard,<sup>12</sup> such a project would have costs of approximately \$1,612,500 in the case of Cravath Lake and of approximately \$3,025,000 in the case of Trippe Lake.<sup>13</sup> More limited dredging of navigational lanes—to provide for boating lanes of 50 feet in width and five feet in depth with 2:1 sloping sides, extending from the five-foot depth contour around the perimeter of the lake basin—would reduce the volume of material to be dredged, and therefore the costs, to about 5,000 cubic yards (\$125,000) in the case of Cravath Lake and to about 3,000 cubic yards (\$75,000) in the case of Trippe Lake. Provision of navigation lanes would create ovoid circuits within the lake basins which would require buoyage to demarcate the locations of the boating areas.

Draining the lake and removing sediment with conventional earth-moving equipment has some advantages over hydraulic dredging since it would not require a large disposal or dewatering site in the immediate area. Draining is also more advantageous for dragline dredging because it does not require the removal of a large number of trees and would probably involve less disturbance of the shoreline to provide access for trucks and equipment.

#### **Recommended Management Measures**

Continued use of vegetative shoreline protection measures around Trippe and Cravath Lakes is recommended. The relatively small surface area of these waterbodies is likely to be such that more intrusive shoreline protection measures would not be allowable under the provisions of Chapter NR 328 of the *Wisconsin Administrative Code*.

While extensive dredging of Trippe and Cravath Lakes is not considered a viable alternative at this time, some limited deepening of navigational lanes to permit the free flow of boating traffic is considered a viable alternative. Limited deepening of the waterbodies would enhance their roles as stormwater/flood management facilities as well as enhance public safety by limiting the volumes of flocculent sediment present in the Lake basins.

## **AQUATIC PLANT MANAGEMENT MEASURES**

### **Background**

As stated in Chapter II, recent aquatic plant management activities in Cravath and Trippe Lakes can be categorized as primarily chemical herbicide treatments to control aquatic plant growths in the Lakes. In addition, individual householders on the Lakes are known to have engaged in manual harvesting in the vicinities of their

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<sup>12</sup>The estimated cost of \$25 per cubic yard is estimated based upon hydraulic dredging costs of \$5 per cubic yard to mobilize the slurry from the lakebeds and about \$20 per cubic yard to transport the material to a confined disposal facility off the Lakes.

<sup>13</sup>The Wisconsin Department of Natural Resources staff indicate that a dredging project involving approximately one-third of the lake areas would probably be considered a "major ecosystem alteration," subject to a Chapter NR 150 environmental analysis and, potentially, to an environmental impact statement that would have to consider, among other aspects, loss of habitat for reptiles, amphibians, and fishes; loss of aquatic plant diversity, especially in Trippe Lake; loss of refugia for zooplankton and fishes, especially young-of-the-year fishes; loss of wading bird feeding area; and, loss of fish feeding area.

piers and docks. These measures, and the other shoreland and aquatic macrophyte management measures set forth in this plan, consider alternative measures consistent with the provisions of Chapters NR 40, NR 103, NR 107, and NR 109 of the *Wisconsin Administrative Code*. The alternative aquatic plant management measures also are consistent with the requirements of Chapters NR 7 and NR 198 of the *Wisconsin Administrative Code*, and with the public recreational boating access requirements relating to the eligibility under the State cost-share grant programs, set forth under Chapter NR 1 of the *Wisconsin Administrative Code*.<sup>14</sup>

As noted in Chapter III, the large numbers of aquatic plants in the Lakes were identified as an issue of concern by the respondents to the community survey, with respondents indicating that the large amounts of aquatic plants were an important concern, scoring 3.52 out of a total of 5.0. Respondents indicated that the abundant growths of aquatic plants was the most significant issue of concern facing the Lakes, ranking 2.16 out of a score of 3.0. Respondents indicated a willingness to pay for aquatic plant management in the Lakes at a rate of about \$67 per year on average. This was slightly less than the average willingness to pay for sediment management.

### **Alternative Management Measures**

Aquatic plant management measures can be classed into four groups: *physical measures*, which include lake bottom coverings and water level management; *biological measures*, which include the use of various organisms, including herbivorous insects and plantings of aquatic plants; *manual and mechanical measures*, which include harvesting and removal of aquatic plants; and, *chemical measures*, which include the use of aquatic herbicides. All control measures are stringently regulated and require a State of Wisconsin permit; chemical controls are regulated under Chapter NR 107 of the *Wisconsin Administrative Code*, and all other aquatic plant management practices are regulated under Chapter NR 109 of the *Wisconsin Administrative Code*. Placement of bottom covers, a physical measure, also requires a WDNR permit under Chapter 30 of the *Wisconsin Statutes*. Costs range from minimal for manual removal of plants using rakes and hand-pulling, to upwards of \$75,000 for the purchase of a mechanical plant harvester, for which the operational costs can approach \$2,500 to \$25,000 per year depending on staffing and operation policies.

#### ***Physical Measures***

Lake bottom covers and light screens provide limited control of rooted plants by creating a physical barrier which reduces or eliminates the sunlight available to the plants. They have been used to create swimming beaches on muddy shores, to improve the appearance of lakefront property, and to open channels for motorboating. Sand and gravel are usually widely available and relatively inexpensive to use as cover materials, but plants readily recolonize areas so covered in about a year. Synthetic materials, such as polyethylene, polypropylene, fiberglass, and nylon, can provide relief from rooted plants for several years. However, such materials, known as bottom screens or barriers, generally have to be placed and removed annually. Such barriers also are susceptible to disturbance by watercraft propellers or the buildup of gasses from decaying plant biomass trapped under the barriers. In the case of Cravath and Trippe Lakes, the need to encourage native aquatic plant growth, while simultaneously controlling the growth of Eurasian water milfoil, suggests that the placement of lake bottom covers as a method to control aquatic plant growth does not appear to be warranted. Thus, such measures are not considered viable for Cravath and Trippe Lakes.

#### ***Biological Measures***

Biological controls offer an alternative approach to controlling nuisance plants, particularly purple loosestrife (*J. ythrum salicaria*), and invasive shoreland wetland plant, and Eurasian water milfoil. Classical biological control

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<sup>14</sup>The willingness to pay for both aquatic plant and sediment management, as noted in Chapter III, was slightly less than the willingness to pay for each remedial effort individually, averaging \$113 per year as opposed to a combined investment of \$139 per year for the individual elements.

techniques have been successfully used to control both nuisance plants with herbivorous insects.<sup>15</sup> Recent evidence shows that *Galerucella pucilla* and *Galerucella californiensis*, beetle species, and *Hylobius transversovittatus* and *Nanophyes brevis*, weevil species, have potential as biological control agents for purple loosestrife.<sup>16</sup> Extensive field trials conducted by the WDNR in the Southeastern Wisconsin Region since 1999 have indicated that these insects can provide effective management of large infestations of purple loosestrife.

In contrast, the few studies of Eurasian water milfoil control utilizing *Eurhychiopsis lecontei*, an aquatic weevil species, have resulted in variable levels of control, with little control being achieved on those lakes having extensive motorized boating traffic.<sup>17</sup> Given the absence of motorized watercraft on both Cravath and Trippe Lakes, the use of artificially maintained populations of *Eurhychiopsis lecontei* as a means of aquatic plant management and Eurasian water milfoil control, in addition to the use of insects as a means of shoreland wetland plant management, is considered to be viable. However, the use of biological control agents in concert with the use of aquatic herbicides is not considered to be a viable option.

The use of grass carp, *Ctenopharyngodon idella*, an alternative biological control used elsewhere in the United States, is not permitted in Wisconsin. Grass carp are a designated invasive species pursuant to Chapter NR 40 of the *Wisconsin Administrative Code*.

#### **Manual and Mechanical Measures**

The physical removal of specific types of vegetation by selective harvesting of plants provides a highly selective means of controlling the growths of nuisance aquatic plant species, including purple loosestrife and Eurasian water milfoil. Pursuant to Chapter NR 109 of the *Wisconsin Administrative Code*, manual harvesting of aquatic plants within a 30-foot-wide corridor along a 100-foot length of shoreline would be allowed without a WDNR permit, provided the plant material is removed from the lake. Any other manual harvesting would require a State permit, unless employed in the control of designated nonnative invasive species, such as Eurasian water milfoil or curly-leaf pondweed.

In the shoreland area, where purple loosestrife may be expected to occur, bagging and cutting loosestrife plants prior to the application of chemical herbicides to the cut ends of the stems, can be an effective control measure for small infestations of this plant. Loosestrife management programs, however, should be followed by an annual monitoring and control program for up to 10 years following the initial control program to manage the regrowth of the plant from seeds. Manual removal of such plants is recommended for isolated stands of purple loosestrife when and where they occur.

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<sup>15</sup>B. Moorman, "A Battle with Purple Loosestrife: A Beginner's Experience with Biological Control," *LakeLine*, Vol. 17, No. 3, September 1997, pp. 20-21, 34-3; see also, C.B. Huffacker, D.L. Dahlsen, D.H. Janzen, and G.G. Kennedy, *Insect Influences in the Regulation of Plant Population and Communities*, 1984, pp. 659-696; and C.B. Huffacker and R.L. Rabb, editors, *Ecological Entomology*, John Wiley, New York, New York, USA.

<sup>16</sup>Sally P. Sheldon, "The Potential for Biological Control of Eurasian Water Milfoil (*Myriophyllum spicatum*) 1990-1995 Final Report," Department of Biology Middlebury College, February 1995.

<sup>17</sup>Contrast the experiences reported on Whitewater Lake in SEWRPC Memorandum Report No. 177, An Aquatic Plant Management Plan for Whitewater and Rice Lakes, Walworth County, Wisconsin, March 2010, with those reported on Spring Lake in SEWRPC Memorandum Report No. 149, A Lake Protection Plan for Spring Lake and Willow Spring Lake, Waukesha County, Wisconsin, August 2004, which yielded widely differing results: Spring Lake, with limited motorized watercraft traffic, achieved a significant level of control as a result of a naturally occurring weevil population, although this control was several years in the making.

In the nearshore area, specially designed rakes are available to assist in the manual removal of nuisance aquatic plants, such as Eurasian water milfoil. The use of such rakes also provides a safe and convenient method of controlling aquatic plants in deeper nearshore waters around piers and docks. The advantage of the rakes is that they are relatively inexpensive, easy and quick to use, and immediately remove the plant material from the lake, without a waiting period. Removal of the plants from the lake avoids the accumulation of organic matter on the lake bottom, which adds to the nutrient pool that favors further plant growth. State permitting requirements for manual aquatic plant harvesting mandate that the harvested material be removed from the lake. Should the City of Whitewater acquire a number of these specially designed rakes, they could be made available for the riparian owners to use on a trial basis to test their operability before purchasing them.

Hand-pulling of stems, where they occur in isolated stands, provides an alternative means of controlling plants, such as Eurasian water milfoil, in the lake, and purple loosestrife, on the lakeshore. Because this is a more selective measure, the rakes being nonselective in their harvesting, manual removal of Eurasian water milfoil is considered a viable option in the Cravath and Trippe Lakes, where practicable and feasible.

Aquatic macrophytes also may be harvested mechanically with specialized equipment consisting of a cutting apparatus, which cuts up to about five feet below the water surface, and a conveyor system that picks up the cut plants. Mechanical harvesting can be a practical and efficient means of controlling plant growth as it removes the plant biomass and nutrients from a lake. Mechanical harvesting is particularly effective as a measure to control large-scale growths of aquatic plants. Consequently, mechanical harvesting, due to the vast expanses of shallow waters and loose bottom sediments in the Lakes, is not a viable option for much of Cravath and Trippe Lakes.

#### *Chemical Measures*

Chemical treatment with herbicides is a short-term method of controlling heavy growths of nuisance aquatic plants. Chemicals are generally applied to the growing plants in either a liquid or granular form. The advantages of using chemical herbicides to control aquatic macrophytes growth are the relatively low-cost and the ease, speed, and convenience of application. The disadvantages associated with chemical control include unknown long-term effects on fish, fish food sources, and humans; a risk of increased algal blooms due to the eradication of macrophyte competitors; an increase in organic matter in the sediments, possibly leading to increased plant growth, as well as anoxic conditions which can cause fish kills; adverse effects on desirable aquatic organisms; loss of desirable fish habitat and food sources; and, finally, a need to repeat the treatment the following summer due to existing seed banks and/or plant fragments. Widespread chemical treatments can also provide an advantage to less desirable, invasive, introduced plant species to the extent that such treatments may produce conditions in which nonnative species can outcompete the more beneficial, native aquatic plant species. Hence, this is seldom a feasible management option to be used on a large scale. Widespread chemical treatment, therefore, is not considered a viable option for Cravath and Trippe Lakes, although limited chemical control is often a viable technique for the control of the relatively small-scale infestations of aquatic plants, such as Eurasian water milfoil, or shoreland plants, such as purple loosestrife.

To minimize the possible impacts of deoxygenation, loss of desirable plant species, and contribution of organic matter to the sediments, early spring or late fall applications should be considered. Such applications also minimize the concentration and amount of chemicals used due to the facts that colder water temperatures enhance the herbicidal effects, while the application of chemical herbicides during periods when most native aquatic plants species are dormant limit the potential for collateral damage. Use of chemical herbicides in aquatic environments is stringently regulated and requires a WDNR permit and WDNR staff oversight during applications.

Use of early spring or late fall chemical controls,<sup>18</sup> targeting growths of Eurasian water milfoil and purple loosestrife in and around the Lake, is considered a viable option for Cravath and Trippe Lakes.

### Recommended Management Measures

The most-effective plans for managing aquatic plants rely on a combination of methods and techniques, such as those described above. Therefore, to enhance the recreational uses of Cravath and Trippe Lakes, while maintaining the quality and diversity of the biological communities, the following recommendations are made:

- Manual harvesting around piers and docks is the recommended means of controlling nonnative nuisance species of plants in those areas. In this regard, the City of Whitewater could consider purchasing several specialty rakes designed for the removal of vegetation from shoreline property and make these available to riparian owners. This would allow the riparian owners to use the rakes on a trial basis before purchasing their own. Although the rakes do not require a permit for use along a 30-foot-wide length of shoreline, State requirements for manual aquatic plant harvesting mandate that the harvested material be removed from the lake. Where feasible and practicable, hand-pulling of stems, where they occur in isolated stands, is also recommended as an alternative means of controlling Eurasian water milfoil and purple loosestrife. Manual control should target nonnative species.
- Alternative: It is recommended that the use of chemical herbicides be limited to controlling nuisance growths of nonnative species, particularly Eurasian water milfoil and purple loosestrife. It is recommended that chemical applications, if undertaken, be made by licensed applicators in early spring or late fall, subject to State permitting requirements,<sup>19</sup> to maximize their effectiveness on nonnative plant species while minimizing impacts on native plant species and acting as a preventative measure to reduce the development of nuisance conditions. Such use should be evaluated annually and the herbicide applied only on an as-needed basis. Only herbicides that selectively control milfoil, such as 2,4-D and endothall, should be used;<sup>20</sup> for the control of purple loosestrife, the use of glyphosate could be considered for application to the cut stems of the plants after the seed heads have been bagged and cut.<sup>21</sup> Both Eurasian water milfoil and purple loosestrife are "restricted" pursuant to Chapter NR 40, and declared invasive species pursuant to Chapter NR 109, of the *Wisconsin Administrative Code*. This alternative should not be employed should the following alternative of the use of biological control agents be adopted.

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<sup>18</sup>It should be noted that, at the time of writing, late fall herbicide treatments are considered to be experimental in Wisconsin and will not typically be permitted by the WDNR at this time, pending further research into the use of such treatments. It also is noted that many aquatic plants become dormant during the late fall and winter, die back, and do not meet the nuisance standards established pursuant to Chapter NR 107 of the Wisconsin Administrative Code as the basis for the application of aquatic herbicides. Consequently, late fall applications of herbicides are not recommended.

<sup>19</sup>Ibid. Late fall herbicide treatments are considered to be experimental in Wisconsin and will not typically be permitted by the WDNR at this time.

<sup>20</sup>2,4-D will also control desirable species, such as *Nymphaea sp.*; see Wisconsin Department of Natural Resources PUBL-WR-236 90, Chemical Fact Sheet: 2,4-D, May 1990; see also Wisconsin Department of Natural Resources PUBL-WR-237 90, Chemical Fact Sheet: Endothall, May 1990.

<sup>21</sup>See Wisconsin Department of Natural Resources PUBL-WR-239 90, Chemical Fact Sheet: Glyphosate, May 1990.

- *Alternative:* It is recommended that the use of biological control agents such as *Eurhychiopsis lecontei* be considered to control the growth of Eurasian water milfoil, and that the use of the beetle species *Galerucella pucilla* and *Galerucella californiensis*, and of the weevil species *Hylobius transversovittatus* and *Nanophyes brevis*, be considered to control the growth of purple loosestrife, in and around Trippe and Cravath Lakes. In order for this alternative to provide a consistent level of treatment of the designated target invasive species, the control agents would have to be stocked annually by service providers and/or volunteers. Both Eurasian water milfoil and purple loosestrife are "restricted" pursuant to Chapter NR 40, and declared invasive species pursuant to Chapter NR 109, of the *Wisconsin Administrative Code*. This alternative should not be employed should the foregoing alternative of the use of chemical herbicides be adopted.
- The use of algicides, such as Cutrine Plus,<sup>22</sup> is not recommended because there are few significant, recurring filamentous algal or planktonic algal problems in Cravath and Trippe Lakes and valuable macroscopic algae, such as *Chara* and *Nitella*, are killed by this product. Maintenance of shoreland areas around docks and piers remains the responsibility of individual property owners.
- Through informational programming, riparian owners should be encouraged to monitor their shoreline areas, as well as open-water areas of the Lakes, for new growths of nonnative nuisance plants and report such growths immediately to the City of Whitewater so that a timely and effective response can be executed.
- It also is recommended that the City of Whitewater consider the conduct of in-lake aquatic plant surveys at about three- to five-year intervals, depending upon the observed degree of change in the aquatic plant communities. In addition, information on the aquatic plant control program should be recorded and should include descriptions of major areas of nuisance plant growth and areas chemically treated.
- Additional periodic monitoring of the aquatic plant community is recommended for the early detection and control of future-designated nonnative species that may occur. Such control could be effected with the assistance of funds provided under the Chapter NR 198, aquatic invasive species control grant program, and should be undertaken as soon as possible once the presence of a nonnative, invasive species is observed and confirmed, reducing the risk of spread from waters where they are present and restoring native aquatic communities. Control of currently designated invasive species, designated pursuant to Chapter NR 109 of the *Wisconsin Administrative Code*, using appropriate control measures,<sup>23</sup> is recommended throughout the Lakes.

## INSTITUTIONAL DEVELOPMENT

### Background

The City of Whitewater created the *Ad Hoc* Lakes Committee, in part, as a vehicle to explore organizational options under which the City could implement and sustain lake management activities, the identification of which formed the major charge to this Committee. Consequently, as part of this planning program, the issue of lake management organizations is an issue to be considered.

<sup>22</sup>See *Wisconsin Department of Natural Resources PUBL-WR-238 90*, Chemical Fact Sheet: Copper Compounds, May 1990.

<sup>23</sup>Appropriate control measures include, but are not limited to, any permitted aquatic plant management measure, placement of signage, and use of buoys to isolate affected areas of the Lake. Such measures as may be appropriate should be determined in consultation with WDNR staff and conducted in accordance with required permits under Chapters NR 107, NR 109, and NR 198, among others, of the *Wisconsin Administrative Code*.

### **Alternative Institutional Measures**

The City of Whitewater, defined as a city of the fourth class based upon its population, has specific powers of governance that include the power to collect, treat, and otherwise manage wastewater—pursuant to Section 62.18 of the *Wisconsin Statutes*, and for city planning—pursuant to Section 62.23 of the *Wisconsin Statutes*, this latter including authority over “waterways” that form part of the City’s overall surface water drainage plan. As used in this Section, waterways include “rivers, streams, creeks, ditches, drainage channels, watercourses, lakes, bays, ponds, impoundment reservoirs, retention and detention basins, marshes and other surface water areas, regardless of whether the areas are natural or artificial.” Additionally, a City may “improve lakes and rivers within the city” and, “where a navigable stream traverses or runs along the border of a city,” “make improvements therein throughout the county in which such city shall be located in aid of navigation, and for the protection and welfare of public health and wildlife.” Thus, a City has the necessary authority to undertake the major actions recommended in this plan.

Additionally, Cities have authority under Chapter 66 of the *Wisconsin Statutes* to create special purpose utility districts and/or undertake public works projects that would be consistent with the actions necessary to implement the major recommendations set forth herein. Indeed, as noted above, the City of Whitewater has already created a Stormwater Utility to manage stormwater within the City. Certain actions recommended herein could be undertaken by the Utility, especially insofar as those actions are designed to manage stormwater and stormwater-borne contaminants that may currently be entering the aquatic environment.

Beyond the actions of the municipal government, the *Wisconsin Statutes* provide for both special purpose governmental entities and private sector entities that can be created to manage lakes within the State. These include voluntary associations incorporated under Chapter 181 of the *Wisconsin Statutes*, which, despite having a somewhat greater number of restrictions imposed upon them, may be considered to be “qualified associations” for purposes of obtaining State cost-share grants. Because of their voluntary nature, membership levels, and, therefore, income levels, of associations often fluctuate from year-to-year. Thus, when such associations take on specific tasks, such as aquatic plant management, for example, the community often elects to create a public inland lake protection and rehabilitation, or lake management, district.

Lake management districts are special purpose governmental units formed under Chapter 33 of the *Wisconsin Statutes* for the specific purpose of managing and protecting lake water quality. Inclusion in the district, once the district is created, is mandatory; registered voters and persons owning property within the district become the electors of the district for purposes of district governance. When created within Cities, lake districts can be created by action of the City Council, who then become the Board of Commissioners of the District. In this case, it is possible for the electors to petition for self-governance, which would establish a five- or seven-member Board of Commissioners who would conduct the day-to-day affairs of the District. Lake management districts have the capability of raising public funds subject to majority approval of the district budget at the annual meeting of the district. For this reason, lake management districts can provide a more stable financial base from which to undertake lake management activities. Nevertheless, lake associations and lake districts often operate in harmony around lakes throughout Wisconsin.

Considerations relating to the definition of a lake management district boundary include the extent to which the drainage area tributary to a lake is included in a district, and, in the case of a chain of lakes, the numbers of lakes to be included. It is rarely practical to include a lake’s total tributary drainage area within a lake management district. However, based upon guidance provided by UWEX, it is recommended that the entire lakeshore, all riparian property, areas directly affecting the lake and/or which are included in planned service areas, and entire parcels be included.<sup>24</sup> In a number of cases in Southeastern Wisconsin, lake districts have been created by

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<sup>24</sup>*University of Wisconsin-Extension, People of the Lakes: A Guide for Wisconsin Lake Organizations, Eleventh Edition, 2006.*

incorporated municipalities that include the entire municipality.<sup>25</sup> In many of these cases, the districts developed and implemented comprehensive lake management plans.<sup>26</sup>

### **Recommended Institutional Measures**

It is recommended that the City of Whitewater consider forming a public inland lake protection and rehabilitation district around Trippe and Cravath Lakes, the boundaries of which should be coincident with those of the City. This area would encompass both Lakes. Creation of a lake management district for the Trippe and Cravath Lakes would enhance the ability of the Whitewater community to manage the Lakes on a sustainable basis, and provide a sound fiscal base from which to conduct lake management activities. This action would be consistent with the level of concern expressed by a majority of the respondents to the citywide questionnaire survey. In addition, the formation of the public inland lake protection and rehabilitation district under Chapter 33 of the *Wisconsin Statutes* would provide the citizens of the City of Whitewater, as electors and property owners within the proposed district, with a dedicated governmental entity focused on Trippe and Cravath Lakes and their management. The lake district would be a forum, through the annual meeting of the district, within which the community could establish priorities, set budgets, and implement lake management actions associated with plan implementation.

## **PUBLIC INFORMATIONAL AND EDUCATIONAL PROGRAMMING**

### **Background**

As part of the overall citizen informational and educational programming to be conducted in the community, residents around and visitors to the Lakes should be made aware of the value of the ecologically significant areas in the overall structure and functioning of the ecosystems of the Lakes. Specifically, informational programming related to the protection of ecologically valuable areas in and around the Lakes should focus on the need to minimize the spread of nuisance aquatic invasive species, such as purple loosestrife and Eurasian water milfoil, and to minimize the introduction of contaminants into the Lakes as a result of household activities. Such an informational program would supplement and enhance the informational programming efforts being undertaken by the City in partnership with the Rock River Stormwater Group outreach activities.

### **Alternative Information and Education Measures**

With respect to aquatic plants, distribution of posters and pamphlets, available from the UWEX and the WDNR, that provide information and illustrations of aquatic plants, their importance in providing habitat and food resources in aquatic environments, and the need to control the spread of undesirable and nuisance plant species, is recommended. Currently, many lake residents seem to view all aquatic plants as "weeds" and residents often

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<sup>25</sup>Examples of such Districts include the Fowler Lake Management District created by the City of Oconomowoc in Waukesha County and the Twin Lakes Lake Management District created by the Village of Twin Lakes in Kenosha County. In each of these cases, the municipal board also serves as the Board of Commissioners of the lake districts, which are independent special purpose units of government even though the persons forming the Board of Commissioners also serve as alderpersons or trustees of the general purpose units of government. It should be noted that a public inland lake protection and rehabilitation district, once formed in this manner, retains the boundary of the municipality as of the date of creation of the district and future changes to the municipal boundary do not change the lake district boundary without action by the lake management district to modify the boundary.

<sup>26</sup>See SEWRPC Community Assistance Planning Report No. 187, A Management Plan for Fowler Lake, Waukesha County, Wisconsin, March 1994; SEWRPC Community Assistance Planning Report No. 302, A Lake Management Plan For Elizabeth Lake And Lake Mary, Kenosha County, Wisconsin, Volume 1, Inventory Findings, July 2009; SEWRPC Community Assistance Planning Report No. 302, A Lake Management Plan For Elizabeth Lake And Lake Mary, Kenosha County, Wisconsin, Volume 2, Alternatives and Recommended Plan, July 2009.

spend considerable time and money removing desirable plant species from a lake without considering their environmental impact.

Educational and informational brochures and pamphlets, of interest to homeowners and supportive of the lake management program, are available from the UWEX, the WDNR, the Walworth County Offices, and many Federal government agencies. These brochures could be provided to homeowners through local media, direct distribution, or targeted library/civic center displays. Alternately, they could be incorporated into the newsletters produced and distributed by the City of Whitewater. Many of the ideas contained in these publications can be integrated into ongoing, larger-scale activities, such as anti-littering campaigns, recycling drives, and similar pro-environment activities.

Other informational programming offered by the WDNR, Walworth County, and the UWEX Lakes Program, such as the Adopt-A-Lake program and Project WET (Water Education Training) curriculum, can contribute to an informed public, actively involved in the protection of ecologically valuable areas within the area tributary to the Lakes. Citizen monitoring under the auspices of the CLMN program, as recommended above, and community awareness of the positive value of native aquatic plant communities, for example, are important opportunities for public informational programming and participation.

### **Recommended Management Measures**

Inclusion of specific public informational and educational programming within the activities of the City of Whitewater is recommended. These programs should focus on the value and impacts of these plants on water quality, fish, and wildlife, and on alternative methods for controlling existing nuisance plants, including the positive and negative aspects of each method. These programs can be incorporated into the comprehensive informational and educational programs that also would include information on related topics, such as water quality, recreational use, fisheries, and onsite sewage disposal systems.

As part of their ongoing commitment to the effective managing of Cravath and Trippe Lakes, the elected officials, staff, and citizens of the City of Whitewater should avail themselves of opportunities to learn about current developments and issues involving lake management. There are numerous publications, writings, newsletters, seminars, and conventions available through governmental, educational, and other organizations and agencies dealing with the subject of lake management. Walworth County, UWEX, Wisconsin Lakes (WAL), the North American Lake Management Society (NALMS), and WDNR, all produce written materials and conduct meetings and seminars dealing with lake management issues. Publications, such as *LakeTides*, published by the Wisconsin Lakes Partnership and available from UWEX, are also readily available and deal with a wide range of lake-related topics. Additionally, the statewide lakes convention and regional lakes workshop, held annually in Green Bay, Wisconsin, and Waukesha, Wisconsin, respectively, provide valuable opportunities to learn about important and timely developments in lake management and learn about lake issues from experts in their fields. Participation in activities that will further understanding of lake management issues is deemed an important part of the lake management experience.

### **SUMMARY**

This plan documents the findings and recommendations arising from a study of the issues of concern related to Cravath and Trippe Lakes in the City of Whitewater, and examines existing and anticipated conditions, potential lake management and protection problems, and recreational use issues affecting the Lakes. The plan sets forth recommended actions and management measures for the resolution of those problems. The recommended plan is summarized in Table 28 and shown on Maps 13 and 14.

Cravath and Trippe Lakes were found to be eutrophic lakes of somewhat below average water quality. Preservation of environmental corridor lands, especially within the shoreland areas situated immediately adjacent to the Lakes, is recommended. Walworth County and the City of Whitewater should support appropriate land management and stormwater management practices designed to reduce nonpoint source pollutant discharges into

Table 28

RECOMMENDED PROTECTION PLAN ELEMENTS FOR CRAVATH AND TRIPPE LAKES

Plan Element	Subelement	Management Measures	Management Responsibility
Urban Development and Stormwater Management	Stormwater Management	Continue to implement the City of Whitewater Stormwater Ordinance	City of Whitewater, City of Whitewater Stormwater Utility
		Support activities by the City of Whitewater Stormwater Utility, including informational programming	City of Whitewater
		Adopt environmentally-friendly shorescaping practices around Trippe and Cravath Lakes and around stormwater management ponds and facilities	City of Whitewater, private landowners
	Water Quality Monitoring	Participate in UWEX CLMN volunteer monitoring of Trippe and Cravath Lakes: continue participation in the case of Trippe Lake and initiate participation in the case of Cravath Lake	WDNR, UWEX, City of Whitewater, University of Wisconsin-Whitewater
		Consider periodic participation in comprehensive water quality monitoring using either the USGS or UWSP WEAL	USGS/UWSP, City of Whitewater
	Public Recreational Water Use	Maintain recreational boating access from the public access sites pursuant to Chapter NR 7 guidelines	WDNR, City of Whitewater
Maintain signage at public access sites regarding invasive species and WDNR Clean Boats-Clean Waters Program; provide disposal containers for disposal of plant material removed from watercraft at boat launch sites		WDNR, UWEX, City of Whitewater	
Sediment Management and Hydrology	Shoreline Protection Management	Continue to use vegetative buffer strips for shoreline protection in the riparian shoreland areas of the Lakes; reconstruction may require WDNR Chapter 30, <i>Wisconsin Statutes</i> , permits	City of Whitewater, private landowners
		Maintain existing shoreline and streambank protection structures and repair as necessary using vegetative means insofar as practicable	Walworth County, Town of Whitewater, City of Whitewater, WDNR, private landowners
	Lake Level and Dam Operations	Maintain dam structures; continue dam operations in accordance with WDNR permit	City of Whitewater
	Dredging	Consider selective dredging to deepen about one-third of the areas of each Lakes by about two feet to enhance public recreational boating access, public safety, flood storage, and ecological integrity of the Lakes—subject to WDNR Chapter 30, <i>Wisconsin Statutes</i> , permitting	WDNR, City of Whitewater
Aquatic Plant Management	Manual Harvesting	Manually harvest around piers and docks as necessary <sup>a</sup> and collect floating plant fragments from shoreland areas to minimize rooting of Eurasian water milfoil and deposition of organic materials in the Lakes	Private landowners
		Manually harvest within public beach areas as necessary and collect floating plant fragments from shoreland areas to minimize rooting of Eurasian water milfoil and deposition of organic materials in the Lakes	City of Whitewater, private landowners
		Where they occur, manually remove isolated stands of purple loosestrife through bagging, culling, herbicide application to cut stems	WDNR, City of Whitewater, private landowners
	Buffer Strips	Encourage growth of native plants in the Lakes through use of vegetated buffer strips and control of Eurasian water milfoil	WDNR, City of Whitewater, private landowners

Table 28 (continued)

Plan Element	Subelement	Management Measures	Management Responsibility
Aquatic Plant Management (continued)	Chemical Controls	Limit the use of aquatic herbicides as an alternative to the control of nuisance nonnative aquatic plant growths where necessary; specifically target Eurasian water milfoil <sup>b</sup>	WDNR, City of Whitewater, private landowners
	Biological Controls	Alternatively, consider the use of biological control agents to minimize the growths of Eurasian water milfoil and purple loosestrife	WDNR, City of Whitewater, private landowners
	Aquatic Plant Monitoring	Monitor shorelines and open water areas for new growths of nonnative invasive species and immediately report any new growths to the City of Whitewater	City of Whitewater, private landowners
		Conduct periodic in-lake reconnaissance surveys of aquatic plant communities and update aquatic plant management plan every three to five years	City of Whitewater
		Conduct additional periodic monitoring of the aquatic plant community for the early detection and control of future-designated nonnative species that may occur	WDNR, City of Whitewater
	Targeted Informational Programming	Continue informational programming focusing on "good housekeeping" practices for landowners	City of Whitewater
Institutional Development	Lake Management District	Consider creation of a public inland lake protection and rehabilitation district within the City of Whitewater, serving both Trippe and Cravath Lakes	City of Whitewater
Public Informational and Educational Programming	Community-based Programming	Participate in informational and educational programming opportunities such as those offered annually by UWEX at the statewide Lakes Convention and/or Southeastern Wisconsin Lakes Workshop	UWEX, City of Whitewater, private landowners
		Continue to provide informational materials and pamphlets on lake-related topics, especially the importance of aquatic plants and the protection of ecologically significant areas	City of Whitewater, WDNR, UWEX
		Consider offering public informational programming on topics of lake-oriented interest and education	City of Whitewater, WDNR, UWEX
		Maintain awareness of current developments in the area of lake management through informative publications such as "Lake Tides" (available free through the Wisconsin Lakes Partnership) and attendance at lake education conventions, workshops, and seminars	City of Whitewater
	School-based Programming	Encourage inclusion of lake studies in environmental curricula (e.g., Pontoon Classroom, Project WET, Adopt-A-Lake)	Area school districts, UWEX, WDNR, Town and City of Whitewater

NOTE: CB,CW = UWEX Clean Boats, Clean Waters Program  
 CLMN = UWEX Citizen Lake Monitoring Network  
 UWEX = University of Wisconsin Extension  
 UWSP = University of Wisconsin-Stevens Point  
 WDNR = Wisconsin Department of Natural Resources  
 WEAL = Water and Environmental Analysis Laboratory

<sup>a</sup>Manual harvesting beyond a 30-linear-foot width of shoreline is subject to WDNR individual permitting pursuant to Chapter NR 109 of the Wisconsin Administrative Code.

<sup>b</sup>Use of aquatic herbicides requires a WDNR permit pursuant to Chapter NR 107 of the Wisconsin Administrative Code.

Source: SEWRPC.

RECOMMENDED PROTECTION PLAN ELEMENTS FOR CRAVATH LAKE



DATE OF PHOTOGRAPHY: APRIL 2005

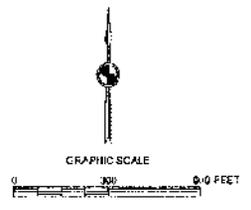
RECOMMENDED PROTECTION PLAN ELEMENTS FOR TRIPPE LAKE



- 4— WATER DEPTH CONTOUR IN FEET
- EURASIAN WATER MILFOIL
- MAINTAIN WATER LEVEL CONTROL STRUCTURE: OPERATE PFR W/DNR PERMIT
- MAINTAIN PUBLIC RECREATIONAL ACCESS
- CONDUCT WATER QUALITY MONITORING
- CONSIDER DEEPENING BY TWO FEET

- 4— CREATE NEW FOUR FOOT CONTOUR
- PROMOTE URBAN AND RURAL NONPOINT SOURCE CONTROL MEASURES
- CONTINUE PUBLIC AWARENESS PROGRAM

DATE OF PHOTOGRAPHY: APRIL 2005



the Lakes. Further, the City of Whitewater should promote appropriate shoreline management practices, including the use of vegetative buffer strips, where applicable.

The shoreland protection and aquatic plant management elements of this plan recommend actions be taken that would reduce human impacts on ecologically valuable areas in and adjacent to the Lakes, encourage a biologically diverse community of native aquatic plants, and limit the spread of nonnative invasive plant species. The plan recommends the use of manual harvesting of nuisance plants in those areas where the depth of water and bottom substrate support such activity, with subsequent removal of cut material from the Lakes; limited use of chemical herbicides mainly in areas where nuisance levels of nonnative invasive species are present; and, monitoring for invasive species. The plan further recommends periodic in-lake aquatic plant surveys every three to five years to monitor changes in the aquatic plant community and assess effectiveness of aquatic plant management techniques.

The plan recommends participation in the UWEX CLMN volunteer water quality monitoring program with consideration of participation in the Expanded Self-Help Program, and periodic conduct of USGS, or equivalent, comprehensive water quality surveys.

With regard to recreational uses of the Lakes, the plan recommends maintaining the public access site in a manner consistent with Chapter NR 1 standards and Chapter NR 7 guidelines, as well as maintaining signage regarding aquatic and other invasive species.

From an organizational standpoint, the plan recommends consideration of the formation of a public inland lake protection and rehabilitation district, around both Lakes, by and serving the City of Whitewater as a dedicated governmental entity tasked with the protection and rehabilitation of the two Lakes.

The recommended plan also includes continuation of an ongoing program of public information and education, focusing on providing riparian residents and lake users with an improved understanding of the lake ecosystem. For example, additional options regarding household chemical use, lawn and garden care, onsite sewage disposal system operation and maintenance, shoreland protection and maintenance, and recreational use of the Lakes should be made available to riparian property owners, thereby providing riparian residents with alternatives to traditional activities. Additionally, staff, elected officials, and citizens of the City of Whitewater are encouraged to maintain and broaden their awareness of current developments in the area of lake management through participation in meetings, seminars, conventions and other lake management-related events, and educational opportunities.

Adherence to the recommendations contained in this plan should provide the basis for a set of protection actions that are: aligned with the goals and objectives set forth in Chapter I; reflective of the ongoing commitment by the City of Whitewater, to sound planning with respect to the Lakes; and sensitive to current needs, as well as those in the immediate future.

## APPENDICES

**Appendix A**

**ILLUSTRATIONS OF COMMON AQUATIC PLANTS  
FOUND IN CRAVATH AND TRIPPE LAKES**



Coontail (*Ceratophyllum demersum*)



Curly-Leaf Pondweed (*potamogeton crispus*)  
Exotic Species (nonnative)



Eurasian Water Milfoil (*myriophyllum spicatum*)  
Exotic Species (nonnative)



Flat-Stem Pondweed (*potamogeton zosteriformis*)



Floating-Leaf Pondweed (*potamogeton natans*)



Illinois Pondweed (*potamogeton illinoensis*)



Large-Leaf Pondweed (*potamogeton amplifolius*)



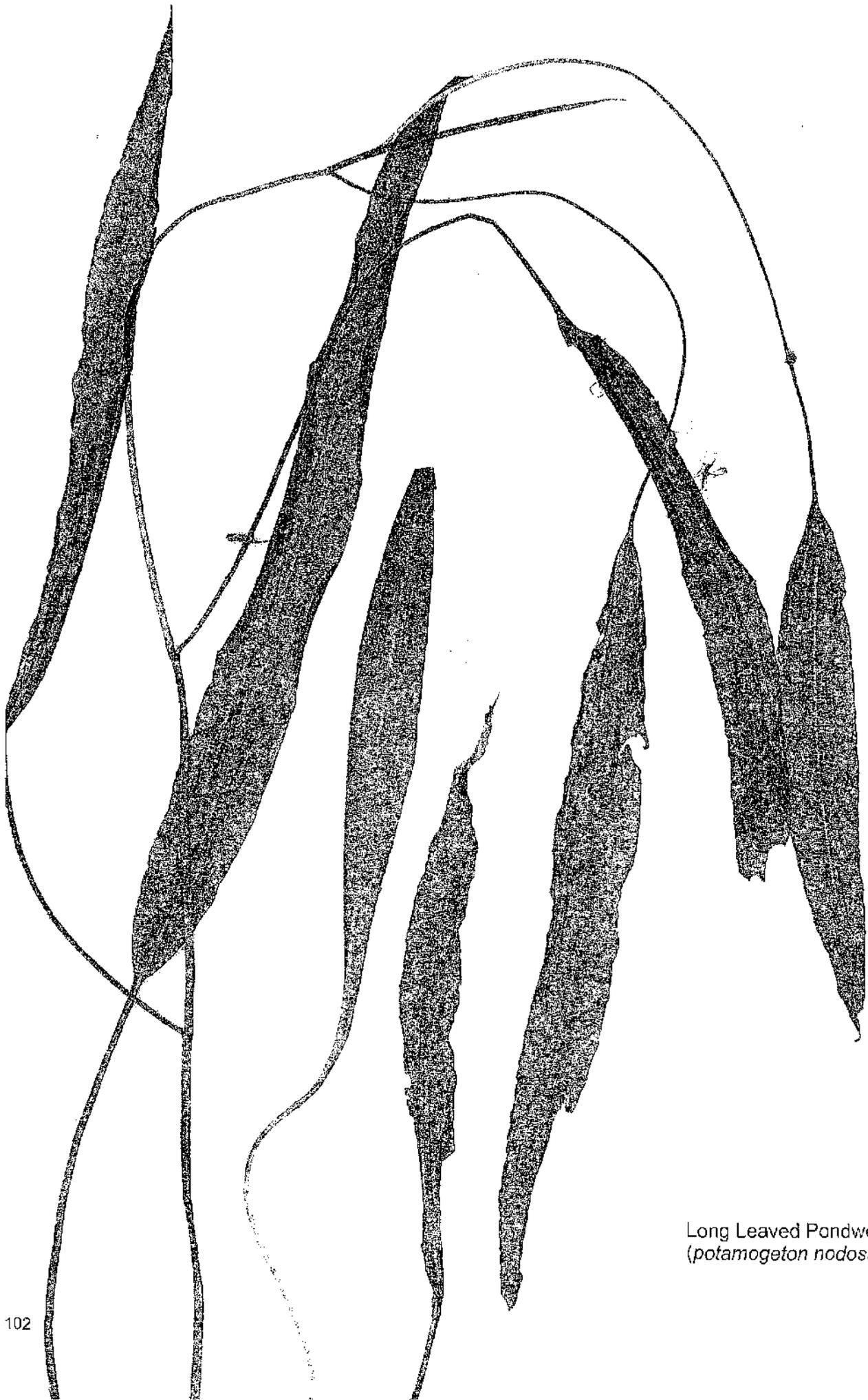
Leafy Pondweed (*potamogeton foliosus*)



Lesser Duckweed (*lemna minor*)

NOTE: Plant species in photograph are not shown **proportionate** to actual size

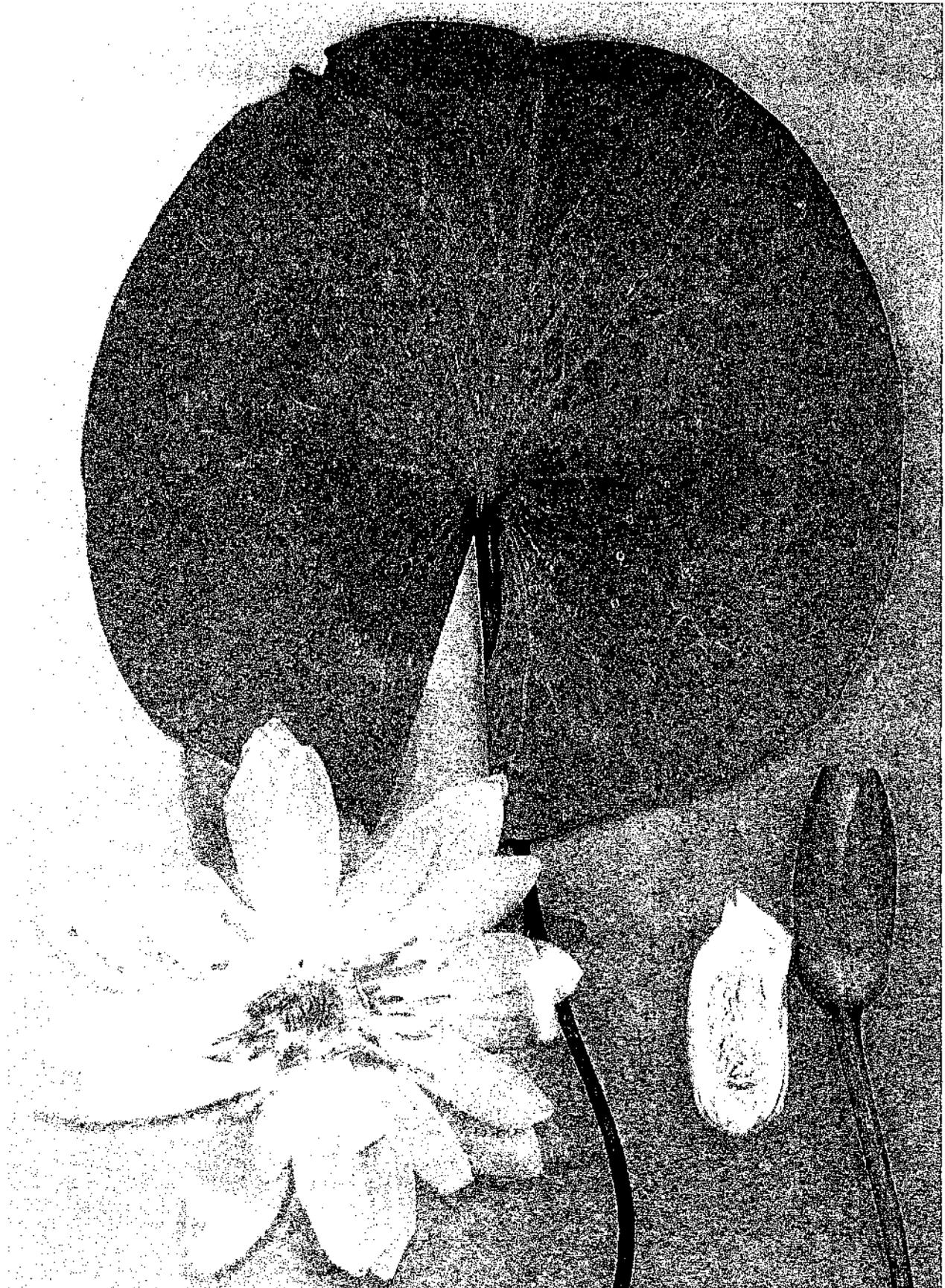
Source: Steve D. Eggers and Donald M. Reed, Wetland Plants and Plant Communities of Minnesota & Wisconsin, 2nd Edition, 1997



Long Leaved Pondweed  
(*potamogeton nodosus*)



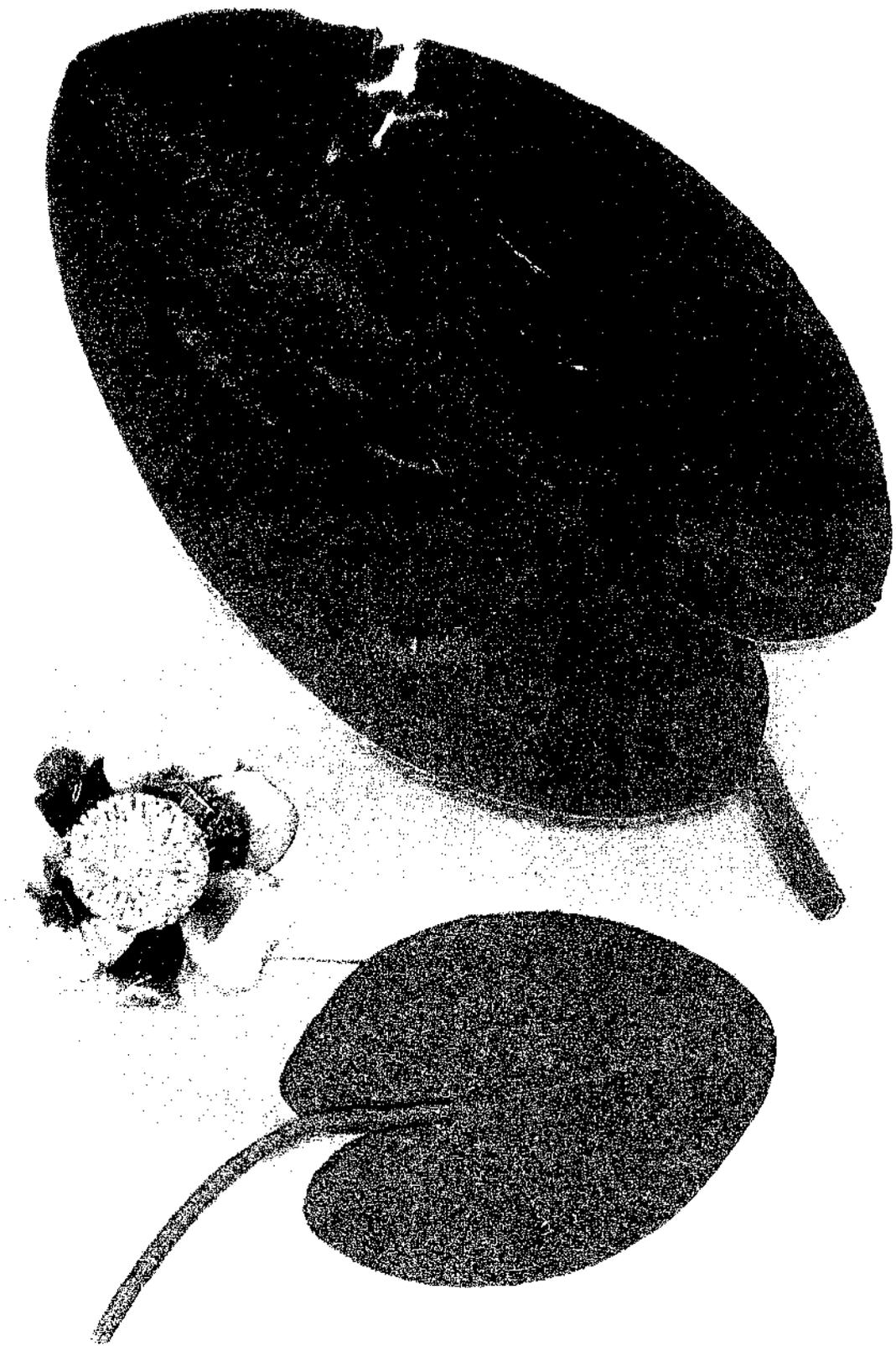
Waterweed (*elodea canadensis*)



White Water Lily (*Nymphaea odorata*)



Eel-Grass / Wild Celery (*valisneria americana*)



Yellow Water Lily (*nuphar variegatum*)

## Appendix B

# BOATING AND OTHER ORDINANCES APPLICABLE TO CRAVATH AND TRIPPE LAKES

### CHAPTER 7.38 REGULATIONS PERTAINING TO CITY PARKS

#### **7.38.010 Closing of parks--Closing of Starin Park roads--Possession of alcoholic beverages.**

(a) Closing of Parks. All city parks shall be closed from 12:00 a.m. to 6:00 a.m., except that Brewery Hill Park shall close at dusk. A permit may be issued for use of the city parks at times other than that set forth herein. Said permit may be issued by the city clerk.

(b) Closing of Starin Park Roads. All roadways beyond the gated area in Starin Park shall be closed to vehicular traffic from November 1 to April 1 of each year. This provision shall not apply to city service and city authorized vehicles.

(c) Possession of Alcoholic Beverages. No alcoholic beverage will be permitted in any city park other than Starin Park. A permit may be granted by the common council pertaining to consumption of alcoholic beverages in parks other than Starin Park, Cravath Lake Park and Tripp Lake Park. Also, the city clerk may issue permits allowing the consumption of alcoholic beverages in Cravath Lake Park, Tripp Lake Park, Starin Park Community Building and other municipal buildings as deemed appropriate by the city manager.

(Ord. 1539A § 1, 2003; Ord. 1538A § 1, 2003; Ord. 1504 § 1, 2002; Ord. 1489 § 1, 2001; Ord. 1359 § 1, 1996).  
(Ord. No. 1693A, § 1, 8-5-2008)

#### **7.38.025 Slow-no-wake areas.**

(a) Definitions. "Slow-no-wake" means that speed at which a boat moves as slowly as possible while still maintaining steering control.

(b) Applicability and Enforcement.

(1) The provisions of this section shall apply to the waters of Tripp Lake and Cravath Lake.

(2) This section shall be enforced by police officers of the City of Whitewater and the city manager or his designee.

(c) Intent. The intent of this section is to provide safe and healthful conditions for the enjoyment of aquatic recreation consistent with public rights and interests.

(d) **Controlled Area.** No person shall operate a boat faster than slow-no-wake speed in the waters of Tripp Lake and Cravath Lake at any time.

(e) **Posting Requirements.** (a) The City of Whitewater shall place and maintain a copy of this section at all public access points within the jurisdiction of the City of Whitewater.

(f) **Penalties.** Wisconsin state boating penalties as found in § 30.80, Wis. Stats., and any amendments or revisions thereto are adopted by reference.

(g) **Severability.** The provisions of this section shall be deemed severable and it is expressly declared that the City of Whitewater council would have passed the other provisions of this section irrespective of whether or not one or more provisions may be declared invalid. If any provision of this section or the application to any person or circumstances is held invalid, the remainder of the section and the application of such provisions to other persons or circumstances shall not be affected.

(h) **State Boating and Safety Laws Adopted.** State boating laws as found in §§ 30.50 to 30.71, Wis. Stats., and any amendments or revision thereto are adopted by reference.

(Ord. 1400 § 1, 1998).

#### **7.38.030 Penalty.**

Any person violating the subsections of this chapter relating to possession of alcohol in parks shall be subject to a penalty of not less than \$150.00 nor more than \$300.00 for the first offense, and for second and subsequent offenses, not less than \$200.00 nor more than \$340.00, together with the costs of prosecution. Any person violating any other section of this chapter for which a penalty has not been provided shall be subject to a penalty of not less than \$50.00 nor more than \$150.00, together with the costs of prosecution.

(Ord. 1428 § 9, 1999; Ord. 1341 § 1(part), 1996; Ord. 983 § 22(part), 1982).

### **CHAPTER 11.48 MISCELLANEOUS PROVISIONS**

#### **11.48.020 Driving, littering and fish shacks on ice on Tripp and Cravath Lakes.**

(a) It is unlawful for any person to drive a motor vehicle on the ice on Tripp Lake and/or Cravath Lake in the city, until the same have been declared safe for such use by the chief of police of the city. All motor vehicles upon the ice shall be removed within one hour after being so notified by the police department of the city to do so.

(b) The placing or leaving of debris or any kind of trash, beer cans, etc. on the ice or placing same in the lakes or on public property is prohibited.

(c) All fishing shacks shall be removed from the ice on the date specified by state law or order of the conservation commission, and the same shall be removed from public property within twenty-four hours after same have been placed thereon.

(Ord. 585 § 1, 1967; prior code § 12.19(A)).

### **CHAPTER 16.10 STORMWATER UTILITY AND MANAGEMENT SERVICES**

#### **16.10.010 Purpose and necessity--Authorization.**

The common council of the City of Whitewater find that the management of stormwater and other surface water discharges within and beyond Whitewater Creek, Tripp Lake, Cravath Lake, and other bodies of water within the city is a matter that affects the health, safety and welfare of the city, its citizens and businesses and others in the surrounding area. All real property in the city, including property owned by public and tax-exempt entities contributes runoff and either uses or benefits from the stormwater system.

Failure to effectively manage stormwater affects the sanitary sewer utility operations of the city by, among other things, increasing the likelihood of infiltration and inflow into the sanitary sewer system. Surface water runoff may cause nonpoint source pollution, erosion of lands, threaten residences and businesses with water damage, and create environmental damage to the rivers, streams and other bodies of water within and adjacent to the city. A system for the collection and disposal of stormwater provides services to all properties within the City of Whitewater and surrounding areas, including those properties not currently served by the system. The cost of operating and maintaining the city stormwater management system and financing necessary repairs, replacements, improvements and extensions thereof should, to the extent practicable, be allocated in relationship to the services received from the system. In order to protect the health, safety and welfare of the public, the common council exercises its authority to establish a stormwater utility and establish the rates for stormwater management services.

In promulgating the regulations contained in this chapter, the city is acting pursuant to authority granted by Chapters 62 and 66 of the *Wisconsin Statutes*, including, but not limited to, Sections 62.04, 62.11, 62.16(2), 62.18, 66.0101, 66.0621, 66.080, 66.0811, 66.0813, 66.0703, and 66.0627.

(Ord. 1672A (part), 2008; Ord. 1647A (part), 2007).

#### **16.16.010 Authority.**

This chapter is adopted by the City of Whitewater under the authority granted by Section 62.234, Wis. Stats. This chapter supersedes all provisions of an ordinance previously enacted under Section 62.23, Wis. Stats., that relate to stormwater management regulations. Except as otherwise specified in Section 62.234, Wis. Stats., Section 62.23, Wis. Stats., applies to this chapter and to any amendments to this chapter.

The provisions of this chapter are deemed not to limit any other lawful regulatory powers of the same governing body.

The City of Whitewater hereby designates the director of public works to administer and enforce the provisions of this chapter.

The requirements of this chapter to not pre-empt more stringent stormwater management requirements that may be imposed by any of the following:

- (a) Wisconsin Department of Natural Resources administrative rules, permits or approvals including those authorized under Sections 281.16 and 283.33, Wis. Stats.
- (b) Targeted non-agricultural performance standards promulgated in rules by the Wisconsin Department of Natural Resources under Section NR 151.004, Wis. Adm. Code.

(Ord. 1559A §1, 2004).

#### **16.16.020 Findings of fact.**

The City of Whitewater finds that uncontrolled, post-construction runoff has a significant impact upon water resources and the health, safety and general welfare of the community and diminishes the public enjoyment and use of natural resources. Specifically, uncontrolled post-construction runoff can:

- (a) Degrade physical stream habitat by increasing stream bank erosion, increasing streambed scour, diminishing groundwater recharge, diminishing stream base flows and increasing stream temperature;
- (b) Diminish the capacity of lakes and streams to support fish, aquatic life, recreational and water supply uses by increasing pollutant loading of sediment, suspended solids, nutrients, heavy metals, bacteria, pathogens and other urban pollutants;

- (c) Alter wetland communities by changing wetland hydrology and by increasing pollutant loads;
- (d) Reduce the quality of groundwater by increasing pollutant loading;
- (e) Threaten public health, safety, property and general welfare by overtaxing storm sewers, drainage ways and other minor drainage facilities;
- (f) Threaten public health, safety, property and general welfare by increasing major flood peaks and volumes;
- (g) Undermine floodplain management efforts by increasing the incidence and levels of flooding.

(Ord. 1559A §2, 2004).

**16.16.030 Purpose and intent.**

(a) Purpose. The general purpose of this chapter is to establish long-term, post-construction runoff management requirements that will diminish the threats to public health, safety, welfare and the aquatic environment. Specific purposes are to:

- (1) Further the maintenance of safe and healthful conditions;
- (2) Prevent and control the adverse effects of stormwater prevent and control soil erosion; prevent and control water pollution; protect spawning grounds, fish and aquatic life; control building sites, placement of structures and land uses; preserve ground cover and scenic beauty; and promote sound economic growth;
- (3) Control exceedance of the safe capacity of existing drainage facilities and receiving water bodies; prevent undue channel erosion; control increases in the scouring and transportation of particulate matter and prevent conditions that endanger downstream property.

(b) Intent. It is the intent of the City of Whitewater that this chapter regulates post-construction stormwater discharges to waters of the state. This chapter may be applied on a site-by-site basis. The City of Whitewater recognizes, however, that the preferred method of achieving the stormwater performance standards set forth in this chapter is through the preparation and implementation of comprehensive, systems-level stormwater management plans that cover hydrologic units, such as watersheds, on a municipal and regional scale. Such plans may prescribe regional stormwater devices, practices or systems, any of which may be designed to treat runoff from more than one site prior to discharge to waters of the state. Where such plans are in conformance with the performance standards developed under Section 281.16, Wis. Stats., for regional stormwater management measures and have been approved by the City of Whitewater, it is the intent of this chapter that the approved plan be used to identify post-construction management measures acceptable for the community.

(Ord. 1559A §3, 2004).

**Appendix C**

**COMMUNITY QUESTIONNAIRE SURVEY INSTRUMENT**

**Trippe and Cravath Lakes Community Survey**

Trippe & Cravath Lakes Improvement Committee  
 Southeastern Wisconsin Regional Planning Commission  
 University of Wisconsin – Whitewater, Fiscal and Economic Research Center

1) To begin the survey, we would like to get your opinion on a range of issues affecting the State of Wisconsin and City of Whitewater. The table below lists several actions that could be taken in your area. Please circle the number in each row that best indicates how important it would be to you....

	Not at all important	A little important	Moderately important	Very important	Extremely important
Improve schools in your area	1	2	3	4	5
Make state and local government more efficient	1	2	3	4	5
Address the economic crisis by stemming the loss of jobs in your area	1	2	3	4	5
Increase local security against terrorism	1	2	3	4	5
Create more local hiking and biking trails	1	2	3	4	5
Increase the quality of environmental resources such as recreational lakes	1	2	3	4	5
Preserve working agricultural lands in your area	1	2	3	4	5
Develop more restaurants and shops in your area	1	2	3	4	5

**Your Home/Apartment in Whitewater**

2) How long have you or your family lived in your current house or apartment? \_\_\_\_\_(Years)

3) How many years have you lived in Whitewater? \_\_\_\_\_(Years)

4) Do you live in Whitewater all 12 months of the year?

Yes  No

If not, how many months per year on average do you live in Whitewater during the various seasons? (Please fill in blanks with best estimates, ranging from 0 to 3 months.)

*/my family live in Whitewater:* \_\_\_\_\_

\_\_\_\_\_ months in Summer (June-Aug)

\_\_\_\_\_ months in Fall (Sept-Nov)

\_\_\_\_\_ months in Winter (Dec-Feb)

\_\_\_\_\_ months in Spring (Mar-May)

5a) Do you live on a lake?

Yes  No

5b) If no, approximately how far do you live from the nearest lake? [Please provide best estimate.]

(Check only 1 box.)

- Less than ¼ mile
- Between ¼ and ½ mile
- Between ½ and 1 mile
- Between 1 and 2 miles
- More than 2 miles: \_\_\_\_\_ miles (fill in blank)
- Don't know

6) What lake is located closest to where you live?

- Cravath Lake
- Trippe Lake
- Don't know

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Because of funding requirements, local governments cannot address every issue. This survey is about environmental problems that affect lakes near your home. Reduction in quality of lakes is one issue faced by resource managers. Even if you do not use lake resources, your opinions and responses are just as important as those who do.

#### Your Use of Cravath and Trippe Lakes in Whitewater

7) Did you or an immediate family member visit either Cravath Lake or Trippe Lake within the last 12 months ?

- Yes  No      If "yes," please continue. If "no," skip to question 9.

8a) How many total visits did you or an immediate family member make within the last 12 months to either Cravath Lake or Trippe Lake? \_\_\_\_\_

8b) When you or your family go to Cravath or Trippe Lakes, what activities do you do there? (Please ✓ all that apply below):

- Fishing (not including ice fishing)
- Ice fishing
- Motor boating
- Sailing
- Canoeing/kayaking
- Swimming or wading
- Watching wildlife/birds
- Waterfowl hunting
- Relaxing/entertaining
- Picnicking
- Snowmobiling
- Exercising
- Attending community special events
- Other (please specify: \_\_\_\_\_ )

8c) When you visit these lakes, how do you usually get there? (Please ✓ ONE below).

- By car
- By bicycle
- On foot
- Other (please specify: \_\_\_\_\_)

9) Do you own a boat?  Yes  No

If so, what type?

- Canoe
- Sailboat
- Paddle boat
- Fishing (outboard motor)
- Fishing (inboard motor)
- Other (please specify: \_\_\_\_\_)

### Your Activities at Lakes other than Cravath/Trippe Lakes

10) Did you or an immediate family member visit any lakes OTHER THAN Cravath or Trippe Lakes within the last 12 months

Yes  No

If "yes," please continue. If "no," skip to question 12.

11a) How many days did you or an immediate family member spend at lakes within the last 12 months?  
\_\_\_\_\_ days (provide best estimate)

11b) What is your favorite lake to visit within driving distance of your home?

Name of lake: \_\_\_\_\_, in \_\_\_\_\_ (City/State)

11c) Why is this your favorite lake?

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**Your Level of Awareness Regarding Issues that are Relevant to Cravath and Trippe Lakes in Whitewater**

12) The table below shows a list of issues that are relevant for Cravath and Trippe lakes. Please indicate your level of awareness with these issues.

(Please circle one number in each row.)

Issues	I am.....		
	Not at all aware of this possible issue	Somewhat aware of this issue	Very much aware of this issue
a) The lakes are shallow	1	2	3
b) The lakes have large amounts of aquatic weeds	1	2	3
c) Residential development is occurring along the lakes' shores	1	2	3
d) Commercial development is occurring near the lakes	1	2	3
e) Water clarity in the lakes is poor	1	2	3
f) Agricultural runoff may affect local water quality	1	2	3
g) Sanding and salting of roads during winter months may affect local water quality	1	2	3

**Your Level of Concern Regarding Issues that may be Relevant to Cravath and Trippe Lakes**

Resource managers currently are concerned about the quality of Cravath and Trippe Lakes and resulting negative impacts on our ability to enjoy them. (1) First, undesirable weed species ( for example, Eurasian water milfoil) are present in and around these lakes. Such weeds crowd out native aquatic plants (e.g., lily pads); reduce the quality of habitat for sportfish; and make it difficult to swim or operate boats. (2) Second, resource managers are concerned about the influx of sediment into these lakes. Too much sediment makes the lakes too shallow to support recreational uses such as swimming and boating, and increases problems with odor and poor water clarity.

13) Are there other problems related to Cravath and Trippe Lakes about which you are concerned?

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14) How concerned are you about various problems at Cravath and Trippe Lakes? Please indicate your levels of concern in the table below.

*(Please circle only one number in each row.)*

I am.....

<b>Issues</b>	<b>I am not at all concerned about this issue</b>	<b>I am a little concerned about this issue</b>	<b>I am somewhat concerned about this issue</b>	<b>I am very concerned about this issue</b>	<b>I am extremely concerned about this issue</b>
A) Aquatic weed species are present in Cravath and Trippe Lakes	1	2	3	4	5
B) Sediment in the lakes has caused loss of depth and changed water quality	1	2	3	4	5
C) Other problems (if any) that you mention in Question 13 above	1	2	3	4	5

15) How do various problems affect (if at all) the quality of your enjoyment of Cravath and Trippe Lakes?

*(Please circle only one number in each row.)*

.....

This issue....

<b>Issue</b>	<b>Does not at all reduce my enjoyment of these lakes</b>	<b>Reduces my enjoyment of these lakes a little</b>	<b>Somewhat reduces my enjoyment of these lakes</b>	<b>Reduces my enjoyment of these lakes a lot</b>	<b>Reduces my enjoyment of these lakes extremely</b>
A) Weed species are present in and around Cravath and Trippe Lakes	1	2	3	4	5
B) Sediment in the lakes has caused loss of depth and changed water quality	1	2	3	4	5
C) Other problems (if any) that you mention in Question 13 above	1	2	3	4	5

The next several questions ask about your willingness to pay for conducting programs to improve Cravath and Trippe Lakes. In order to conduct the programs, money will need to be raised. This may be done by creating a "special tax district" affecting you and your neighbors living in the City of Whitewater. Money to fund the programs would be raised through increased property taxes, and all money raised would be used only for the lake programs. When answering, please consider your income, other things you spend money on, and the many other possible programs that could be funded by your local government.

**16) PLEASE CONSIDER CAREFULLY THE FOLLOWING PROPOSED SCENARIO FOR WEED CONTROL AT CRAVATH AND TRIPPE LAKES:**

As mentioned above, Cravath and Trippe Lakes currently have undesirable weed species. Resource managers are considering a weed removal program. Weed removal may be done by hand pulling and raking or by using approved chemicals that do not affect humans. Resource managers would use the method considered to be safest and most cost-effective, and the method would be repeated as necessary to control weeds. The program will:

- Enhance the habitat for fish, including those caught by recreational anglers
- Reduce unpleasant physical contact with weeds while engaging in water-based recreation such as swimming
- Result in visual improvements to the lakes
- Allow native plant species to return
- Improve the biological functioning of the lake

This weed control program by itself will NOT address the buildup of sediment in the lakes, which is discussed next.

How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to achieve the outcomes described above from the Weed Control Program? *(Circle one number.)*

\$0	\$3	\$10	\$40	\$125	\$450	\$1,500	\$5,000
\$1	\$5	\$15	\$60	\$200	\$650	\$2,250	More than \$5,000
\$2	\$8	\$25	\$90	\$300	\$1,000	\$3,300	Don't know

16a) Please explain why you circled the dollar amount for Weed Control that you did:

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**17) PLEASE CONSIDER CAREFULLY THE FOLLOWING PROPOSED SCENARIO FOR SEDIMENT REMOVAL AT CRAVATH AND TRIPPE LAKES:**

As mentioned above, Cravath and Trippe Lakes currently have large deposits of sediment. Resource managers are considering a sediment removal program. Sediment removal is done using precision land-based or water-based equipment, and the extracted sediment would be removed from the area and deposited safely outside of Whitewater. The method would be repeated as necessary to control sediment. The program will:

- Create deeper lakes
- Allow for better swimming and watercraft operation, including creating new areas that currently cannot be used for water-based recreation
- Reduce odor and increase water clarity

This Sediment Removal Program by itself will NOT reduce the undesirable weeds in the lakes, which was discussed previously

How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to achieve the outcomes described above from the Sediment Removal Program? *(Circle one number.)*

\$0	\$3	\$10	\$40	\$125	\$450	\$1,500	\$5,000
\$1	\$5	\$15	\$60	\$200	\$650	\$2,250	More than \$5,000
\$2	\$8	\$25	\$90	\$300	\$1,000	\$3,300	Don't know

17a) Please explain why you circled the dollar amount for Sediment Removal that you did:

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**18) FINALLY, PLEASE CONSIDER CAREFULLY ONE MORE ALTERNATIVE FOR CRAVATH AND TRIPPE LAKES:**

Resource managers are considering a program that would include *BOTH* weed control *AND* sediment removal. This will result in all of the benefits listed above for *BOTH* of these programs.

How much would you be willing to pay in additional property taxes each year, for the next 10 years, in order to achieve the outcomes described for both the Weed Control Program and the Sediment Removal Program? *(Circle one number.)*

\$0	\$3	\$10	\$40	\$125	\$450	\$1,500	\$5,000
\$1	\$5	\$15	\$60	\$200	\$650	\$2,250	More than \$5,000
\$2	\$8	\$25	\$90	\$300	\$1,000	\$3,300	Don't know

18a) Please explain why you circled the dollar amount for Weed Control AND Sediment Removal that you did:

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**General Information and Public Opinions**

19) What is your household's total annual income from all sources? *(Check one.)*

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Below \$20,000      | <input type="checkbox"/> \$50,000 - \$59,999 | <input type="checkbox"/> \$90,000 - \$99,999   |
| <input type="checkbox"/> \$20,000 - \$29,999 | <input type="checkbox"/> \$60,000 - \$69,999 | <input type="checkbox"/> \$100,000 - \$149,999 |
| <input type="checkbox"/> \$30,000 - \$39,999 | <input type="checkbox"/> \$70,000 - \$79,999 | <input type="checkbox"/> \$150,000 - \$199,999 |
| <input type="checkbox"/> \$40,000 - \$49,999 | <input type="checkbox"/> \$80,000 - \$89,999 | <input type="checkbox"/> \$200,000 - \$299,999 |
|  |  | <input type="checkbox"/> Over \$300,000        |

20) What level of education have you completed? *(Check one.)*

- |   |  |
|---|--|
| <input type="checkbox"/> High school or less              | <input type="checkbox"/> Completed four-year degree      |
| <input type="checkbox"/> Some college or technical school | <input type="checkbox"/> Completed some graduate classes |
| <input type="checkbox"/> Completed two-year degree        | <input type="checkbox"/> Completed graduate degree       |

21) What is your age in years? *(Check one.)*

- |                                   |                                |                                |                                |  |
|-----------------------------------|--------------------------------|--------------------------------|--------------------------------|--|
| <input type="checkbox"/> Under 22 | <input type="checkbox"/> 23-25 | <input type="checkbox"/> 26-29 | <input type="checkbox"/> 30-34 | <input type="checkbox"/> 35-39         |
| <input type="checkbox"/> 40-44    | <input type="checkbox"/> 45-49 | <input type="checkbox"/> 50-54 | <input type="checkbox"/> 55-64 | <input type="checkbox"/> 65-75         |
|                                   |                                |                                |                                | <input type="checkbox"/> Over 75 years |

22) Are you currently a university student?  Yes  No

## Appendix D

# SUMMARY STATISTICS FROM THE TRIPPE AND CRAVATH LAKES SURVEY<sup>1</sup>

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<sup>1</sup>*This appendix was prepared by Ms. Paige Peterson and Professor Mark E. Eiswerth, Economics Department, Hyland Hall, College of Business & Economics, University of Wisconsin-Whitewater 53190.*

**SECTION D.1. GENERAL INFORMATION ON  
RESPONDENT'S RESIDENCE IN WHITEWATER**

**Table D-1**

**PROXIMITY OF SURVEY RESPONDENTS TO TRIPPE AND CRAVATH LAKE'S SHORELINE  
(AS COMPUTED THROUGH MAPPING ANALYSIS)**

Distance from House to Shoreline (miles)	Frequency	Percent
Less than 1/4 .....	114	27.40
Between 1/4 and 1/2 .....	100	24.04
Between 1/2 and 3/4 .....	49	11.78
Between 3/4 and 1 .....	22	5.29
Between 1 and 1 1/4 .....	53	12.74
Between 1 1/4 and 1 1/2 .....	21	5.05
Between 1 1/2 and 1 3/4 .....	34	8.17
Between 1 3/4 and 2 .....	10	2.40
Over 2 .....	5	1.20
Out of Town .....	7	1.68
<b>Total</b>	<b>416</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

**Table D-2**

**SURVEY RESPONDENTS' PERCEIVED DISTANCE FROM THE NEAREST LAKE (TRIPPE OR CRAVATH)**

Location	Frequency	Percent
Live on Lake .....	48	11.76
Less than 1/4 Mile .....	72	17.65
Between 1/4 and 1/2 Mile .....	55	13.48
Between 1/2 and 1 Mile .....	78	19.12
Between 1 and 2 Miles .....	125	30.64
More than 2 Miles .....	23 (mean = 3.82 miles)	5.64
Don't Know .....	7	1.72
<b>Total</b>	<b>408</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-3

NUMBER OF SURVEY RESPONDENTS OWNING OR RENTING THEIR RESIDENCE

Status	Frequency	Percent
Own .....	377	87.67
Rent .....	53	12.33
Total	430	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-4

LENGTH OF SURVEY RESPONDENTS' RESIDENCE (YEARS)

Location	Frequency	Average (years)
Current Residence .....	426	14.17
City of Whitewater .....	429	26.93

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-5

NUMBER OF YEAR ROUND SURVEY RESPONDENTS

Status	Frequency	Percent
Year Round .....	406	93.98
Seasonal .....	26	6.02
Total	432	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-6

MONTHS OF RESIDENCE IN WHITEWATER HOME FOR SEASONAL SURVEY RESPONDENTS

Season	Average Months in Residence
Summer (June-August) .....	2.25
Fall (September-November) .....	2.45
Winter (December-February) .....	0.70
Spring (March-May) .....	1.70
Total	7.75

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-7

SURVEY RESPONDENTS LOCATED ON TRIPPE OR CRAVATH LAKE

Location	Frequency	Percent
On Lake .....	49	11.53
Not on Lake.....	376	88.47
Total	425	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-8

LAKE LOCATED NEAREST TO SURVEY RESPONDENT

Location	Frequency	Percent
Cravath .....	268	65.61
Trippe.....	108	26.10
Both .....	24	5.85
Don't Know.....	10	2.44
Total	410	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

## SECTION D.2. RESPONDENTS' USE OF CRAVATH AND TRIPPE LAKES

Table D-9

### SURVEY RESPONDENTS VISITING EITHER CRAVATH OR TRIPPE LAKE WITHIN THE PAST 12 MONTHS

Response	Frequency	Percent
Yes.....	324	76.24
No.....	101	23.76
<b>Total</b>	<b>425</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-10

### SURVEY RESPONDENTS' AVERAGE NUMBER OF VISITS TO CRAVATH OR TRIPPE LAKE DURING THE PAST 12 MONTHS

Visits	Frequency	Percent
0.....	101	26.17
1-10.....	177	45.85
11-20.....	42	10.88
21-30.....	20	5.18
31-40 (average = 31.61).....	9	2.33
41-50.....	6	1.55
51-60.....	3	0.78
61-70.....	0	0.00
71-80.....	1	0.26
81-90.....	0	0.00
91-100.....	9	2.33
101-200.....	4	1.04
201-300.....	5	1.30
More than 300.....	9	2.33
<b>Total</b>	<b>425</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-11

**SURVEY RESPONDENTS' ACTIVITIES WHILE VISITING CRAVATH OR TRIPPE LAKE**

Type	Frequency	Percent
Attending Community Special Events .....	252	74.12
Relaxing/Entertaining.....	224	65.88
Exercising .....	159	46.76
Watching Wildlife/Birds .....	152	44.70
Fishing (not including ice fishing).....	108	31.76
Picnicking.....	90	26.47
Canoeing/Kayaking.....	49	14.41
Other.....	35	10.29
Ice Fishing.....	25	7.35
Swimming or Wading.....	21	6.18
Waterfowl Hunting.....	8	2.35
Motor Boating.....	7	2.06
Snowmobiling.....	2	0.59
Sailing .....	1	0.29
Total	340	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-12

**SURVEY RESPONDENTS' MODE OF TRAVEL TO CRAVATH OR TRIPPE LAKES**

Type	Frequency	Percent
Motor Vehicle .....	176	50.87
Foot.....	176	50.87
Bicycle .....	63	18.21
Other.....	5	1.44
Total	346	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-13

**SURVEY RESPONDENTS OWNING A BOAT**

Response	Frequency	Percent
Own a Boat.....	116	26.91
Do Not Own a Boat.....	315	73.09
Total	431	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-14

**TYPE OF BOAT OWNED BY SURVEY RESPONDENTS**

Type	Frequency	Percent
Fishing (outboard motor).....	56	47.46
Canoe.....	53	44.92
Other.....	23	19.49
Fishing (inboard motor).....	8	6.78
Paddle Boat.....	5	4.24
Sailboat.....	2	1.69
Total	118	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

### SECTION D.3. PROPERTY OWNERS' EXPERIENCES WITH OTHER LAKES

Table D-15

#### SURVEY RESPONDENTS VISITING LAKES OTHER THAN CRAVATH OR TRIPPE LAKES WITHIN THE PAST 12 MONTHS

Response	Frequency	Percent
Yes.....	261	62.00
No.....	160	38.00
Total	421	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-16

#### NUMBER OF DAYS SURVEY RESPONDENTS VISITED OTHER LAKES WITHIN THE PAST 12 MONTHS

Visits	Frequency	Percent
1-10.....	159	61.87
11-20 (average = 16.76).....	44	17.12
21-30.....	25	9.73
31-40.....	8	3.11
41-50.....	9	3.50
51-60.....	5	1.95
61-70.....	1	0.39
71-80.....	1	0.39
81-90.....	0	0.00
91-100.....	1	0.39
101-150.....	1	0.39
151-200.....	2	0.78
More than 200.....	1	0.39
Total	425	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-17

## FAVORITE LAKES VISITED BY SURVEY RESPONDENTS

Lake	Location	Frequency	Percent
Whitewater Lake .....	Whitewater, WI	50	19.69
Geneva Lake .....	Lake Geneva, WI	20	7.87
Cravath Lake .....	Whitewater, WI	14	5.52
Lake Michigan .....	Milwaukee, WI	19	7.48
Rice Lake .....	Whitewater, WI	11	4.33
Delavan Lake .....	Delavan, WI	10	3.94
Pleasant Lake .....	LaGrange, WI	9	3.54
Lauderdale Lakes .....	Elkhorn, WI	7	2.76
Ottawa Lake .....	Eagle, WI	7	2.76
Trippe Lake .....	Whitewater, WI	7	2.76
Turtie Lake .....	Delavan, WI	6	2.36
Rock Lake .....	Lake Mills, WI	6	2.36
Devil's Lake .....	Baraboo, WI	5	1.97
Blue Spring Lake .....	Palmyra, WI	4	1.57
Mencota Lake .....	Madison, WI	4	1.57
Monona Lake .....	Madison, WI	3	1.18
Castle Rock Lake .....	New Lisbon, WI	2	0.79
Chippewa Lake .....	Hayward, WI	2	0.79
Crystal Lake .....	Neshkoro, WI	2	0.79
Gilbert Lake .....	Wild Rose, WI	2	0.79
LaGrange Lake .....	LaGrange, WI	2	0.79
Nebagamon Lake .....	Nebagamon, WI	2	0.79
Red Cedar Lake .....	Cambridge, WI	2	0.79
Sandy Beach Lake .....	Lake Mills, WI	2	0.79
Lake Superior .....	Bayfield, WI	2	0.79
Other .....	WI	54	21.26
Total	--	254	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

## SECTION D.4. SURVEY RESPONDENTS' VIEWS ON LAKE TOPICS AND OTHER ISSUES

Table D-18

### SURVEY RESPONDENTS' OPINIONS ON THE IMPORTANCE OF ISSUES AFFECTING THE STATE OF WISCONSIN AND CITY OF WHITEWATER

Survey Respondents' Opinions on the Importance of Certain Issues		Not At All Important 1	2	3	4	Extremely Important 5	Total
Enhance Local Environmental Resources	Issue	33	60	101	107	103	404
	Percent	8.17	14.85	25.00	26.49	25.50	100.00
	Mean	--	--	3.46	--	--	--
Develop More Restaurants and Shops in Local Area	Issue	55	63	124	86	76	404
	Percent	13.61	15.59	30.69	21.29	18.81	100.00
	Mean	--	--	3.13	--	--	--
Preserve Agricultural Land	Issue	26	56	94	132	95	403
	Percent	6.45	13.90	23.33	32.75	23.57	100.00
	Mean	--	--	3.53	--	--	--
More Efficient Governments	Issue	9	19	94	131	150	403
	Percent	2.23	4.71	23.33	32.51	37.22	100.00
	Mean	--	--	--	3.98	--	--
Create More Recreational Trails	Issue	88	116	95	58	37	394
	Percent	22.34	29.44	24.11	14.72	9.39	100.00
	Mean	--	2.59	--	--	--	--
Terrorism Security	Issue	113	108	103	48	26	398
	Percent	28.39	27.14	25.88	12.06	6.53	100.00
	Mean	--	2.41	--	--	--	--
Improve Local Schools	Issue	27	42	109	109	110	397
	Percent	6.80	10.58	27.46	27.46	27.71	100.00
	Mean	--	--	3.59	--	--	--
Job Loss	Issue	14	23	69	144	143	393
	Percent	3.56	5.85	17.56	36.64	36.39	100.00
	Mean	--	--	--	3.96	--	--

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-19

## SURVEY RESPONDENTS' LEVEL OF AWARENESS OF CRAVATH AND TRIPPE LAKES ISSUES

Relevant Issues for Trippe and Cravath Lakes		Not At All Aware 1	Somewhat Aware 2	Very Much Aware 3	Total
The Lakes Are Shallow	Issue	86	131	206	423
	Percent	20.33	30.97	48.70	100.00
	Mean	--	2.28	--	--
The Lakes Have Large Amounts of Aquatic Weeds	Issue	36	92	299	427
	Percent	8.43	21.55	70.02	100.00
	Mean	--	2.16	--	--
Residential Development is Occurring along the Lakes	Issue	56	126	245	427
	Percent	13.11	29.51	57.38	100.00
	Mean	--	2.44	--	--
Commercial Development is Occurring near the Lakes	Issue	171	163	93	427
	Percent	40.05	38.17	21.78	100.00
	Mean	1.81	--	--	--
The Lakes' Water Clarity is Poor	Issue	45	111	270	426
	Percent	10.56	26.06	63.38	100.00
	Mean	--	--	2.53	--
Agricultural Runoff May Affect Water Quality	Issue	76	140	211	427
	Percent	17.80	32.79	49.41	100.00
	Mean	--	2.32	--	--
Sanding and Salting of Roads May Affect Water Quality	Issue	75	176	177	428
	Percent	17.52	41.12	41.36	100.00
	Mean	--	2.24	--	--

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-20

**SURVEY RESPONDENTS' LEVEL OF CONCERN FOR VARIOUS PROBLEMS AT CRAVATH AND TRIPPE LAKES**

Survey Respondents' Concern: About Certain Issues		Not At All Concerned 1	A Little Concerned 2	Somewhat Concerned 3	Very Concerned 4	Extremely Concerned 5	Total
Aquatic Weed Species Are Present in Cravath and Trippe Lakes	Issue	40	47	107	109	119	422
	Percent	9.48	11.14	25.36	25.83	28.20	100.00
	Mean	--	--	3.52	--	--	--
Sediment in Cravath and Trippe Lakes Has Caused Loss of Depth and Changed Water Quality	Issue	39	44	97	113	126	421
	Percent	9.26	10.45	23.04	26.84	30.40	100.00
	Mean	--	--	3.59	--	--	--
Other Problems	Issue	38	20	42	44	75	219
	Percent	17.35	9.13	19.16	20.09	34.25	100.00
	Mean	--	--	3.45	--	--	--

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-21

**EFFECT OF PROBLEMS ON RESPONDENTS' QUALITY OF ENJOYMENT OF CRAVATH AND TRIPPE LAKES**

Survey Respondents' Concern About Certain Issues		Does Not Reduce Enjoyment	Reduces Enjoyment a Little	Somewhat Reduces Enjoyment	Reduces Enjoyment a Lot	Reduces Enjoyment Extremely	Total
Aquatic Weed Species Are Present in Cravath and Trippe Lakes	Issue	76	41	98	84	111	410
	Percent	18.54	10.00	23.90	20.49	27.07	100.00
	Mean	--	--	3.28	--	--	--
Sediment in Cravath and Trippe Lakes Has Caused Loss of Depth and Changed Water Quality	Issue	86	44	88	88	102	408
	Percent	21.08	10.78	21.57	21.57	25.00	100.00
	Mean	--	--	3.19	--	--	--
Other Problems	Issue	55	18	47	33	64	217
	Percent	25.35	8.29	21.86	15.21	29.49	100.00
	Mean	--	--	3.15	--	--	--

Source: University of Wisconsin-Whitewater and SEWRPC.

**SECTION D.5. RESPONSES TO WILLINGNESS TO PAY  
SCENARIOS FOR WEED CONTROL AND SEDIMENT REMOVAL**

Table D-22

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR A WEED CONTROL PROGRAM  
FOR TRIPPE AND CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0.....	98	24.56
\$1-9.....	29	7.27
\$10-25.....	97	24.31
\$26-99 (mean = \$67.46).....	74	18.55
\$100-300.....	57	14.29
\$301-999.....	7	1.75
\$1,000-5,000.....	3	0.75
More than \$5,000.....	1	0.25
Don't Know.....	33	8.27
<b>Total</b>	<b>399</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-23

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR A SEDIMENT REMOVAL PROGRAM FOR TRIPPE AND  
CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0.....	102	25.50
\$1-9.....	23	5.75
\$10-25.....	90	22.50
\$26-99 (mean = \$72.27).....	78	19.50
\$100-300.....	62	15.50
\$301-999.....	7	1.75
\$1,000-5,000.....	4	1.00
More than \$5,000.....	1	0.25
Don't Know.....	33	8.25
<b>Total</b>	<b>400</b>	<b>100.00</b>

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-24

**SURVEY RESPONDENTS' WILLINGNESS TO PAY FOR BOTH WEED CONTROL AND SEDIMENT REMOVAL PROGRAMS FOR TRIPPE AND CRAVATH LAKES THROUGH INCREASED PROPERTY TAXES EACH YEAR**

Amount (dollars per year)	Frequency	Percent
\$0.....	93	23.54
\$1-9.....	15	3.80
\$10-25.....	62	15.70
\$26-99.....	78	19.76
\$100-300 (mean = \$113.24).....	90	22.78
\$301-999.....	19	4.81
\$1,000-5,000.....	7	1.77
More than \$5,000.....	2	0.51
Don't Know.....	29	7.34
Total	395	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

## SECTION D.6. SURVEY RESPONDENT DEMOGRAPHIC DATA

Table D-25

### SURVEY RESPONDENTS' TOTAL ANNUAL HOUSEHOLD INCOME

Income	Frequency	Percent
Below \$20,000 .....	32	8.44
\$20,000-\$29,999 .....	42	11.08
\$30,000-\$39,999 .....	43	11.35
\$40,000-\$49,999 .....	45	11.87
\$50,000-\$59,999 .....	49	12.93
\$60,000-\$69,999 .....	34	8.97
\$70,000-\$79,999 .....	29	7.65
\$80,000-\$89,999 .....	30	7.92
\$90,000-\$99,999 .....	16	4.22
\$100,000-\$149,000 .....	43	11.35
\$150,000-\$199,999 .....	8	2.11
\$200,000-\$299,999 .....	5	1.32
\$300,000 or More .....	3	0.08
Total	379	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-26

### SURVEY RESPONDENTS' HIGHEST LEVEL OF EDUCATION COMPLETED

Level of Education	Frequency	Percentage
High School or Less .....	48	11.65
Some College or Technical School .....	78	18.93
Completed Two-Year Degree .....	18	4.37
Completed Four-Year Degree .....	84	20.39
Completed Some Graduate Classes .....	35	8.50
Completed Graduate Degree .....	149	36.17
Total	412	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-27

**SURVEY RESPONDENTS THAT ARE CURRENTLY A UNIVERSITY STUDENT**

Response	Frequency	Percent
Yes.....	21	5.04
No.....	396	94.96
Total	417	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Table D-28

**SURVEY RESPONDENTS' AGE**

Age	Frequency	Percent
Under 22.....	9	2.17
23-25.....	8	1.93
26-29.....	14	3.38
30-34.....	24	5.80
35-39.....	26	6.28
40-44.....	24	5.80
45-49.....	32	7.73
50-54.....	47	11.35
55-64.....	101	24.40
65-75.....	74	17.87
Over 75.....	55	13.29
Total	414	100.00

Source: University of Wisconsin-Whitewater and SEWRPC.

Appendix E

**WISCONSIN DEPARTMENT OF NATURAL  
RESOURCES CHAPTER 30 DREDGING PERMIT  
GUIDANCE AND APPLICATION**

The Wisconsin Department of Natural Resources helps protect your rights in public waters as well as public safety, by ensuring adequate planning and design of projects affecting fish and wildlife habitat, water quality and natural scenic beauty. This is done through permit and plan approval requirements for individual water projects. Chapters 30 and 31 of the Wisconsin Statutes require written permits for certain activities on or near a waterway: for example, to place any material below the ordinary high water mark (such as rock riprap, fish cribs, culverts, fords, etc.); to construct a bridge, dredge material from a lake or stream; create a pond; or to construct, operate, or maintain a dam. A single pier or wharf can generally be placed without a permit, provided state standards are met; more extensive piers or marinas require a permit.

**Before submitting this application for a lake dredging permit, please contact your county, city or village zoning department to find out if your project site is in either a mapped wetland or floodplain and if local zoning restrictions could affect your project. Please see the Wetland Information topic (found in the Waterway and Wetland Permits Web Page) or request Wetland Packet #20 in addition to this packet for details.**

**A complete application with detailed drawings will help us make a decision about your application for a permit. The following information is necessary for a complete application.**

To help us make a decision in the shortest time possible, please submit the following information:

1. **A copy of your deed or similar proof of ownership** (e.g. land contract, current property tax receipt).
2. **Good photographs that clearly show the existing project area.** Remember, too much snow cover or vegetation may obscure important details. If possible, have another person stand near the project area for size reference.
3. **Five (5) copies of a completed application Form 3500-53 including applicant information page and project plans.** When completing your application, **please use a ballpoint pen with black ink.** The site location sketch and plan drawings (see Sample Drawing) should be clear and to scale and have enough detail to find the site and understand the project proposal. **Please follow the sample drawing and information requirements pages attached. Also, make sure your phone number (both business and home) and property address or fire number is on the application. Plans may be submitted on a separate page(s), but please submit five (5) copies.**
4. **Five (5) copies of a narrative description of your proposal, on a separate blank page.** Please state:
  - what the project is,
  - how you intend to carry out the project, including methods, materials and equipment,
  - your proposed construction schedule and sequence of work,
  - what temporary and permanent erosion control measures will be used, and
  - the location of any disposal area for dredged or excavated materials.
5. **Five (5) copies of site maps.** Provide copies of relevant maps (when possible), such as USGS topographic map, Wisconsin Wetland Inventory map, FEMA floodplain maps, soil or zoning maps, with the project location clearly identified.
6. **The appropriate application fee (complete Form 3500-53A).**

If you have questions or problems in filling out or completing the application requirements, please call or contact the Water Management Specialist for the county where your project is located.

When you are finished compiling your application materials, remember to check your application for completeness. Then make copies of all materials so that you can submit five copies of the requested information to the Department. We also recommend that you keep a complete copy for your own records. Remember, incomplete applications may cause a delay in processing.

**NOTE:** Depending upon the type, complexity, and location of your proposed project, processing can take 60 working days (3 months) or longer to complete a review, public notice and any required environmental analysis if your application is completed in detail.

Thank you for contacting the Wisconsin Department of Natural Resources.  
Enclosed are the project application materials you have requested.

### Lake Dredging Information Requirements

All applications to remove material from a lakebed require the following information, on the application form and plan drawing sheet supplied or additional sheets if necessary.

1. In the "proposed materials" box, indicate what equipment and method of excavation will be used. The application must contain a description of the sequence of construction events including the installation of temporary and permanent erosion control measures and final landscaping and stabilization measures for the spoil disposal area.
2. In the "location sketch" box, sketch or trace a map that clearly indicates the location of the project. Recommended scale is 1" = 2000'. The map should enable the Department investigator to locate the project site.
3. The top view should include the following information:
  - a. The location of the shoreline and the location of the cross-section.
  - b. The proposed dredge area.
  - c. The spoil disposal area. NOTE: If spoils are to be hauled from the site for disposal, provide a map showing where disposal will occur.
  - d. Floodplain and wetland boundary.
  - e. Depth contours up to the limit of the proposed dredging.
  - f. The scale of the top view and a north arrow.
4. The cross-section view of the project should be selected approximately perpendicular to the lake and include the following:
  - a. The normal water level in the lake.
  - b. A profile of the existing bottom and the proposed dredged bottom.
  - c. The scale or dimensions of the drawing.
5. Proper erosion control measures, including the use of staked hay bales and silt fencing, must be used and maintained during and after the construction of this project. All erodible areas must be immediately seeded and mulched with a fast growing grass mixture. This grass seed mixture must become established and stabilize all erodible areas. These erosion control measures must adequately protect the waterway and wetlands from erosion and run-off.

<p><b>Note: Spoil disposal is not allowed in wetlands or floodplains.</b></p>
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Please select the scale of the drawing carefully to fit all the necessary information on the application form. If necessary, use additional sheets. Be sure to draw all the plans as accurately as possible. The Department may require additional information to evaluate the project.

Please send the completed application to the Water Management Specialist for the county where your project is located (a complete listing of addresses by county can be found on the Waterway and Wetland Permits web page link below).

<http://dnr.wi.gov/waterways>

DRAWINGS OF PROPOSED ACTIVITY SHOULD BE PREPARED IN ACCORDANCE WITH SAMPLE DRAWING

Location Sketch (Indicate scale.) Show route to project site: include nearest main road and crossroad.

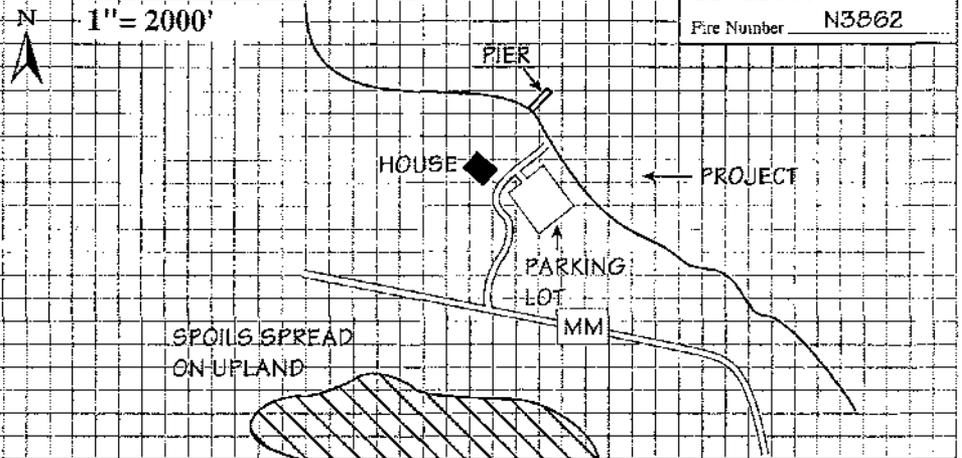
LAKE DREDGING SAMPLE DRAWING

Proposed Materials

Excavation will be by clamshell dredge. Spoils will be hauled off site to an upland location. Total dredge volume is approximately 100 cubic yards.

1" = 2000'

Fire Number N3862



Project Plans. (Include top view and typical cross sections. Clearly identify features and dimensions or indicate scale.) Use additional sheets if necessary.

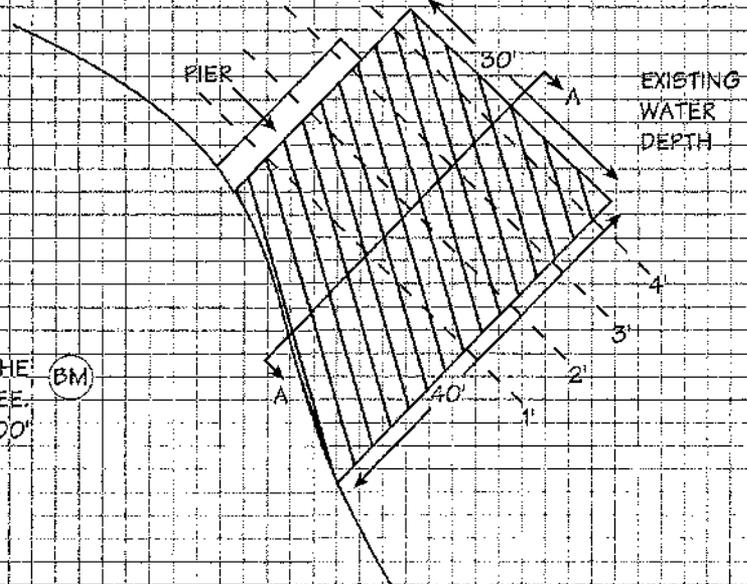
1" = 20'

Top View

THE HATCHED PROJECT AREA WILL BE DREDGED TO APPROXIMATELY 4 1/2' DEPTH AT NORMAL WATER LEVEL. TOTAL DREDGING VOLUME WILL BE APPROXIMATELY 100 YD<sup>3</sup>.

A SPIKE 2' ABOVE THE GROUND IN A 16" OAK TREE. ASSUMED ELEVATION = 100'

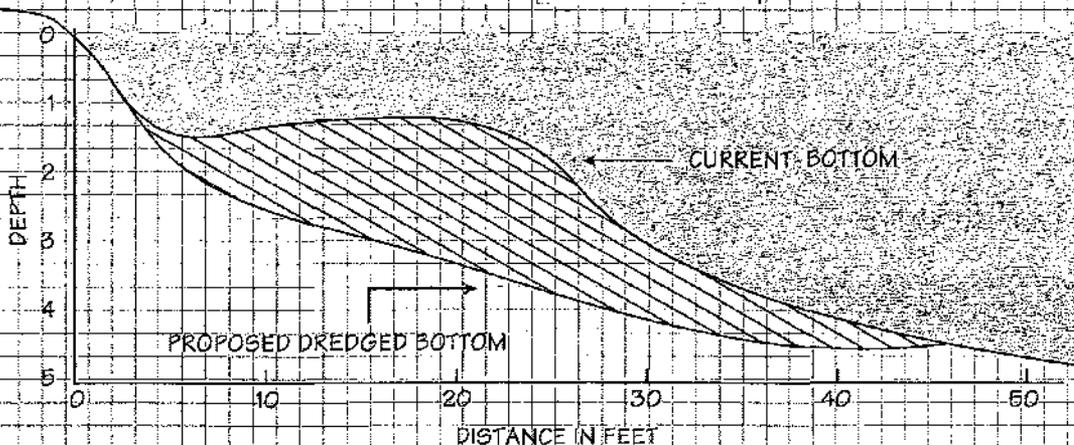
BM



SECTION A-A

Cross Section

NORMAL WATER ELEVATION = 96.0'



PLEASE COMPLETE BOTH PAGES 1 & 2 OF THIS APPLICATION. PRINT OR TYPE. The Department requires use of this form for any application filed pursuant to Chapter 30, Wis. Stats. The Department will not consider your application unless you complete and submit this application form. Personally identifiable information on this form will not be used for any other purpose, but it must be made available to requesters under Wisconsin's open records law [s. 19.31-19.39, Wis. Stats.].

1. Applicant (Individual or corporate name)  Address _____  City, State, Zip Code _____ Fire Number _____  Telephone No. (Include area code) _____ Tax Parcel Number _____	2. Agent/Contractor (firm name)  Address _____  City, State, Zip Code _____  Telephone No. (Include area code) _____
--	--

3. If applicant is not owner of the property where the proposed activity will be conducted, provide name and address of owner and include letter of authorization from owner. Owner must be the applicant or co-applicant for structure, diversion and stream realignment activities.

Owner's Name	Address	City, State, Zip Code
--------------	---------	-----------------------

4. Is the applicant a business? <input type="checkbox"/> Yes <input type="checkbox"/> No  If YES, is the permit or approval you are applying for necessary for you to conduct this business in the State of Wisconsin? <input type="checkbox"/> Yes <input type="checkbox"/> No  If YES, please explain why (attach additional sheets if necessary):	5. Project Location Address _____ Village/City/Town _____ Fire Number _____ Tax Parcel Number _____ Waterway _____ County _____ Govt. Lot _____ OR _____ 1/4, _____ 1/4, of Section _____, Township _____ North, Range _____ (East) (West)
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6. Adjoining Riparian (Neighboring Waterfront Property Owner) Information

Name of Riparian #1	Address	City, State, Zip Code
Name of Riparian #2	Address	City, State, Zip Code

7. Project Information (Attach additional sheets if necessary)

(a) Describe proposed activity (include how this project will be constructed)

(b) Purpose, need and intended use of project

(c) I have applied for or received permits from the following agencies: (Check all that apply)

Municipal  County  Wis. DNR  Corps of Engineers

(d) Date activity will begin if permit is issued \_\_\_\_\_; be completed: \_\_\_\_\_

(e) Is any portion of the requested project now complete?  Yes  No. If yes, identify the completed portion on the enclosed drawings and indicate here the date activity was completed:

I hereby certify that the information contained herein is true and accurate. I also certify that I am entitled to apply for a permit, or that I am the duly authorized representative or agent of an applicant who is entitled to apply for a permit. Any inaccurate information submitted may result in permit revocation, the imposition of a forfeiture(s) and requirement of restoration.

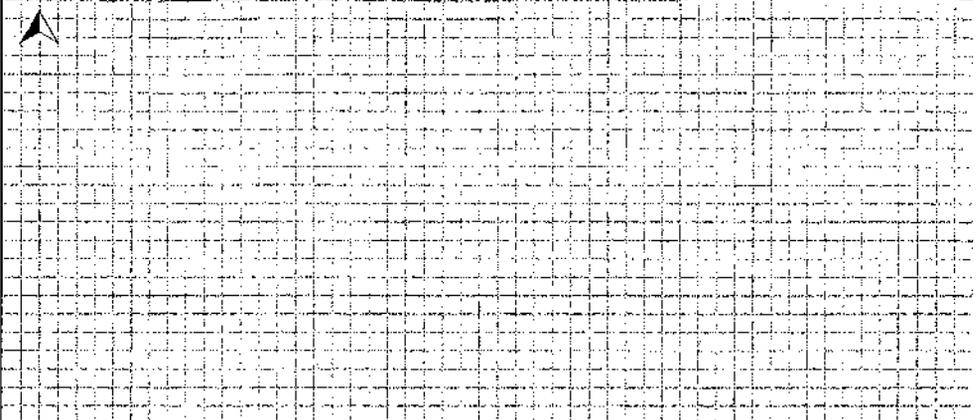
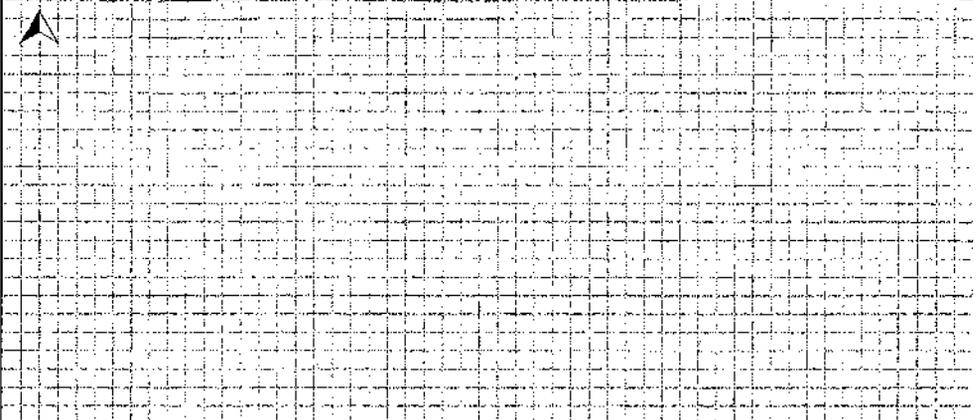
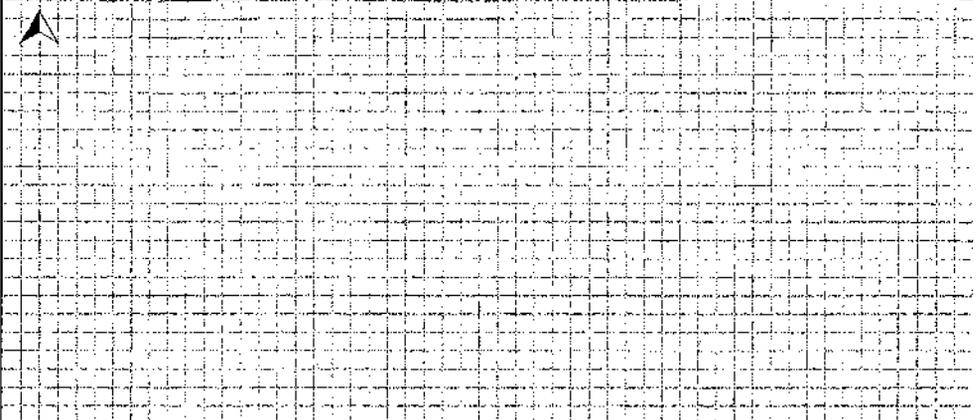
Signature of Applicant(s) or Duly Authorized Agent	Date Signed
--	-------------

<b>LEAVE BLANK - FOR RECEIVING AGENCY USE ONLY</b>		
Corps of Engineers Process No.	Wisconsin DNR File No.	
Received By	Date Received	Date Application Was Complete

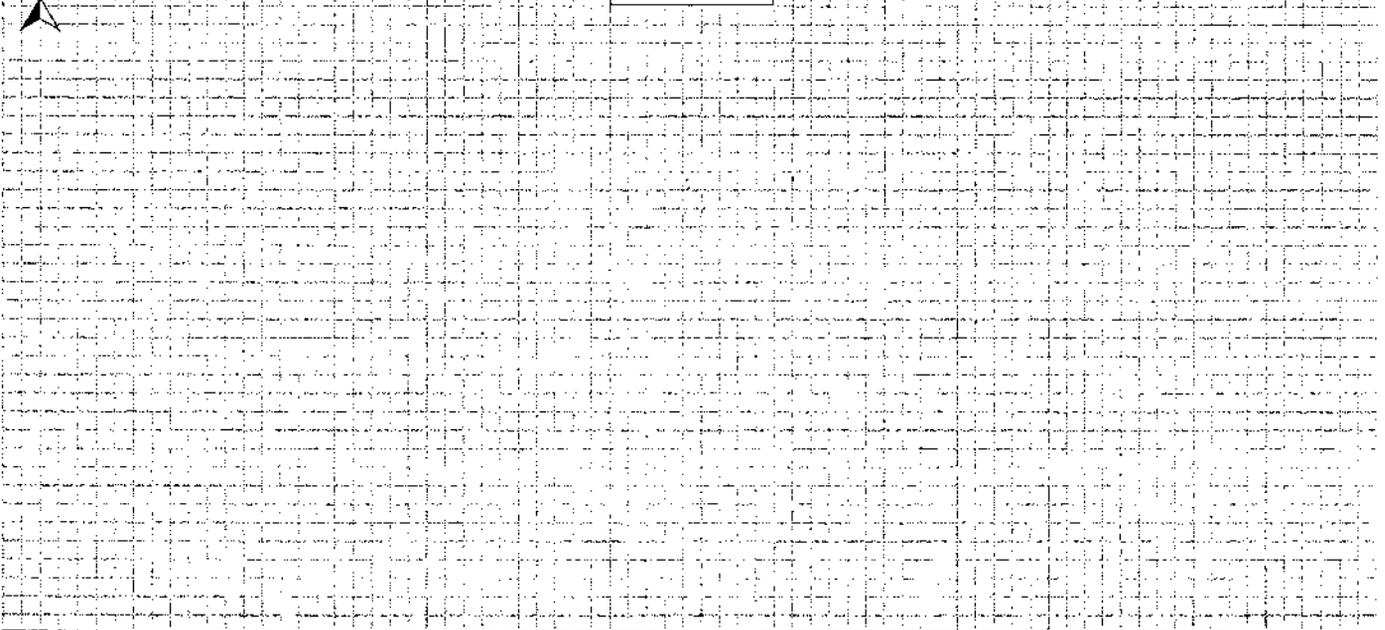
State / Federal Application for Water Regulatory Permits and Approvals

Form 3500-053 (R 4/01)

Page 2 of 2

Drawings of proposed activity should be prepared in accordance with sample drawing.	<b>Location Sketch</b> (Indicate scale) Show route to project site; include nearest main road and crossroad.						
Proposed Materials	<table border="1"><tr><td>N</td><td>1" = _____ ft.</td><td>Fire Number _____</td></tr><tr><td colspan="3"></td></tr></table>	N	1" = _____ ft.	Fire Number _____			
N	1" = _____ ft.	Fire Number _____					
							

**Project Plans** (Include top view and typical cross sections. Clearly identify features and dimensions or indicate scale.)  
Use additional sheets if necessary.

N 1" = _____ ft.	<b>Top View</b>
	

<b>Cross Section</b>	
