

---

**THE RILEY PURGATORY BLUFF CREEK  
WATERSHED DISTRICT  
ANNUAL REPORT  
FOR YEAR ENDING DECEMBER 31, 2010**

---

<b>I. INTRODUCTION</b> .....	<b>2</b>
<b>II. APPOINTMENTS</b> .....	<b>3</b>
MANAGERS .....	3
CITIZEN ADVISORY COMMITTEE MEMBERS .....	4
TECHNICAL ADVISORY COMMITTEE MEMBERS.....	5
CONSULTANTS.....	6
<b>III. PLAN PERFORMANCE</b> .....	<b>7</b>
A. BASIC WATER MANAGEMENT PROJECTS PETITIONED BY MUNICIPALITIES .....	7
1. <i>Riley Creek</i> .....	7
2. <i>Round Lake</i> .....	8
3. <i>Purgatory Creek Restoration</i> .....	8
B. WATER MANAGEMENT PLAN PROJECTS.....	8
1. <i>Lotus Lake Outlet Analysis and Volume Control Project</i> .....	9
2. <i>Lotus Lake Water Quality Improvement Project</i> .....	10
3. <i>Fish Barrier &amp; Invasive Species Control</i> .....	10
4. <i>Mitchell Lake Water Quality Improvement Project</i> .....	10
5. <i>Lake Susan Shoreline Restoration</i> .....	12
C. OTHER MATTERS .....	12
1. <i>Water Quantity and Quality Monitoring Data</i> .....	12
2. <i>Local Plan Adoption and Implementation</i> .....	12
3. <i>Annual Communication</i> .....	12
4. <i>Solicitation of Interest Proposals</i> .....	13
5. <i>Maintenance</i> .....	13
<b>IV. FINANCIAL AND AUDIT REPORTS</b> .....	<b>13</b>
A. REPORTING OF REVENUES AND EXPENDITURES.....	13
B. BUDGET ADOPTED FOR 2010.....	13
<b>V. CONCLUSION</b> .....	<b>14</b>

## **I. INTRODUCTION**

Pursuant to Minnesota Statutes Section 103D.351 and Minnesota Rules Section 8410.0150, the Board of Managers of the Riley Purgatory Bluff Creek Watershed District submits its 2010 Annual Activity Report. The report includes the District's members, technical and citizen advisors, summaries of the plans, goals, water management projects, and communication programs of the District. The District distributes its Annual Activity Report to the Minnesota Department of Natural Resources and the Board of Soil and Water Resources as provided by law.

Copies of the report or audit may be obtained from the District's Managers or through [www.rileywd.org](http://www.rileywd.org). The Managers invite comments and suggestions concerning this report.

## II. APPOINTMENTS

### Managers

NAME AND OFFICE	APPOINTING COUNTY	CONTACT INFORMATION	DATE OF TERM EXPIRATION
	Hennepin	9505 Highview Drive Eden Prairie, MN 55347 <a href="mailto:pforster@rileywd.org">pforster@rileywd.org</a>	7/31/2011
	Hennepin	18559 Kristie Lane Eden Prairie, MN 55346 <a href="mailto:mcasanova@rileywd.org">mcasanova@rileywd.org</a>	7/31/2013
	Carver	8412 Great Plains Boulevard Chanhassen, MN 55317 <a href="mailto:kwenc1@rileywd.org">kwenc1@rileywd.org</a>	7/31/2012
	Hennepin	10351 Decatur Avenue South Bloomington, MN 55438 <a href="mailto:jcrafton@rileywd.org">jcrafton@rileywd.org</a>	7/31/2012
	Hennepin	3941 Colgate Avenue Minnetonka, MN 55345 <a href="mailto:pkirkegaard@rileywd.org">pkirkegaard@rileywd.org</a>	7/31/2011

Citizen Advisory Committee Members

<u>NAME</u>	<u>RESIDENCE</u>	<u>MAILING ADDRESS</u>
	Chanhassen	7199 Frontier Trail Chanhassen, MN 55317
	Eden Prairie	9536 Lakeland Terrace Eden Prairie, MN 55347
	Eden Prairie	9000 Riley Lake Road Eden Prairie, MN 55347
	Chanhassen	7341 Frontier Trail Chanhassen, MN 55317
	Eden Prairie	8011 Island Road Eden Prairie, MN 55347
	Eden Prairie	9470 Lakeland Terrace Eden Prairie, MN 55347
	Eden Prairie	17574 Belfast Cover Eden Prairie, MN 55347
	Chanhassen	7000 Utica Lane Chanhassen, MN 55317
	Chanhassen	7000 Utica Lane Chanhassen, MN 55317
	Eden Prairie	7821 Bailey Drive Eden Prairie, MN 55347
	Eden Prairie	17083 Terrey Pine Drive Eden Prairie, MN 55347
	Eden Prairie	8597 Red Oak Drive Eden Prairie, MN 55347
	County Representatives	Hennepin County Carver County
	Carver County	Carver SWCD

Technical Advisory Committee Members

NAME AND OFFICE	ORGANIZATION	MAILING ADDRESS
	City of Eden Prairie	8080 Mitchell Road Eden Prairie, MN 55344 (951) 949-8420
	City of Eden Prairie	8080 Mitchell Road Eden Prairie, MN 55344 (952) 949-8327
	City of Bloomington	1700 West 98 <sup>th</sup> Street Bloomington, MN 55431 (952) 563-4870
	City of Bloomington	1700 West 98 <sup>th</sup> Street Bloomington, MN 55431 (952) 563-4867
	City of Minnetonka	14600 Minnetonka Boulevard Minnetonka, MN 55343 (952) 939-8239
	City of Minnetonka	14600 Minnetonka Boulevard Minnetonka, MN 55343 (952) 939-8233
	City of Deephaven (Bolton & Menk, Inc.)	1107 Hazeltine Boulevard, Suite 480 Chaska, MN 55318 (952) 448-8838 x2607
	City of Shorewood	5755 Country Club Road Shorewood, MN 55331 (952) 829-7145
	City of Shorewood	5755 Country Club Road Shorewood, MN 55331
	City of Chanhassen	7700 Market Boulevard P.O. Box 147 Chanhassen, MN 55317 (952) 227-1169
	City of Chanhassen	7700 Market Boulevard P.O. Box 147 Chanhassen, MN 55317 (952) 227-1168

Dee Haven

**Consultants**

The principal consultants serve at the pleasure of the Board of Managers and for monthly flat fees. By requiring these terms, the Board of Managers retains independent contractor consultants who provide all of the necessary engineering, accounting, legal, public information, and administrative services without the need for employees' attendant salary, space, telephone, pension and insurance costs, while meeting statutory and regulatory requirements. The District's independent consultants effectively fulfill its obligations, goals, and objectives within the approved finances and budget. The following consultants served the District in 2010:

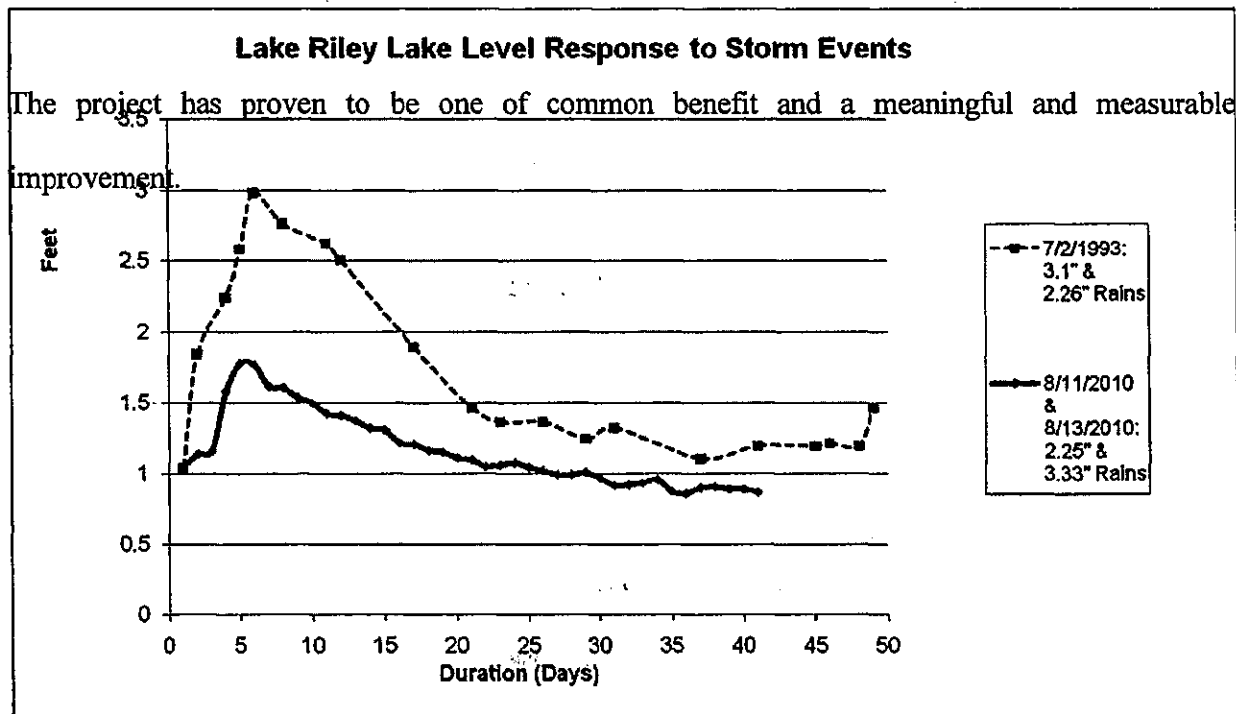
NAME	ORGANIZATION	MAILING ADDRESS AND TELEPHONE NUMBER
	CH2M HILL Engineer	1295 Northland Drive, #200 Mendota Heights, MN 55120 (651) 688-8100
	Cavanaugh & Company P.A. Certified Public Accountant	1660 South Hwy 100, #500 St. Louis Park, MN 55416 (952) 697-3577
	ICS Agency, Inc. Insurance Agent	4901 West 77 <sup>th</sup> Street Minneapolis, MN 55435 (952) 835-4848
	HLB Tautges Redpath, Ltd. Auditor	4810 White Bear Parkway White Bear Lake, MN 55110 (651) 426-7000
	Krebsbach and Haik, Ltd Coordinator	100 South Fifth Street, #1900 Minneapolis, MN 55402 (612) 333-7400

### III. PLAN PERFORMANCE

#### A. Basic Water Management Projects Petitioned by Municipalities

##### 1. Riley Creek

In 2010, after completion of the Lake Riley Outlet Basic Water Management Project petitioned by the City of Eden Prairie, the Managers had opportunity to observe and record comparable storms. The observations showed the outlet had reduced the bounce in lake level following a storm by two and one-half times. The observations also showed the outlet reduced the high water elevation by more than twelve inches and reduced duration of elevated water levels from three weeks to one week. These changes also reduced downstream discharge rates thereby reducing erosive potential.



## 2. Round Lake

In 2010, the District completed the Round Lake Basic Water Management Project after complying with recently promulgated sediment analysis and disposal requirements. During the project additional minor repairs were made to outlet structures. The maintenance of this basin provided a control pond for assessment of soluble phosphorous loadings associated with detention basins. The purpose of investigating these basins was to evaluate whether assumptions underlying best management recommendations given by the Minnesota Pollution Control Agency are reasonable and verifiable and appropriate for use in water quality modeling. The results of this control study are expected to be reported in 2011.

## 3. Purgatory Creek Restoration

The Engineer reported on the project, which report has yet to be reviewed by the Board of Managers for further proceedings.

## B. Water Management Plan

The Managers completed a review of the Proposed Water Management Plan and submitted the proposed plan to the Board of Water and Soil Resources for review and approval. Given the careful consideration and active engagement with stakeholders, approval is anticipated by the Board in January 2011 thereby successfully concluding the update of the water management plan commenced in 2005. The current Managers express their strong appreciation to all managers serving during this period and specially commend the meaningful participation of the Citizen and Technical Advisory Committees. Their efforts truly aided the Managers and enhanced the resulting proposed plan.



The Managers are continuing their current projects that seek restoration and improvement of recreational and other beneficial uses and focus upon those lakes with significant internal loading effects and public beaches and access within residential areas. The Managers remain committed to sound scientific work and recognize the University of Minnesota has provided exceptional scientific inquiry resulting in broad recognition of the work undertaken by the Managers. Special presentations were made concerning this work at the Annual Meeting of the Minnesota Association of Watershed Districts as well as special presentations to State natural resource agencies and departments.

1. Lotus Lake Outlet Analysis and Volume Control Project

Development of the hydraulic and hydrologic model continued down Purgatory Creek from Lotus Lake's outlet to the eastern crossing under TH 62 (near Scenic Heights Dr.). The area encompasses five communities (Minnetonka, Chanhassen, Eden Prairie, Shorewood, and Deephaven) and information was gathered from all five. The hydrologic portion was completed and reviewed. The hydraulic components and edits to the hydrologic elements are being completed. Three level sensors were utilized to collect water level data in order to assist in calibration of the model. Also, a system was installed that monitors the outlet structure and is able to send an alert if evidence of clogging is detected.

The Managers introduced their Low Impact Development strategy during the Evening with the Watershed and presentation by a Tom Cahill, a nationally recognized storm water innovator and author of several state LID and BMP manuals. The Engineer began evaluations of storm water strategies to reduce high energy and high nutrient runoff from the watershed. This work included site investigations within the Lotus Lake watershed examining different areas of concern and evaluating options.

2. Lotus Lake Water Quality Improvement Project

One element of the District's ONE WATER management philosophy is to work from top to bottom of the watersheds. The carp removal work that has been ongoing in the Riley ONE WATER has focused the District's efforts onto those lakes. The hydraulics and hydrology for the Lotus Lake watershed have been analyzed in 2008-2010; solutions are being implemented under the Lotus Lake Outlet Analysis and Volume Control or Reduction Project (see above). Once the hydraulics are better stabilized, water quality improvement work will proceed. The initial step in improving water quality is to assess the fisheries, especially the common carp. A systematic counting of carp is anticipated in 2011/2012.

3. Fish Barrier & Invasive Species Control project.

The Managers continued their invasive species control and management project. There are two fundamental components of the project: first, developing and implementing a sustainable program to control common carp; second, restoration of native aquatic plant communities following carp removal and control.

With this winter's seining, approximately 80% of all adult common carp found in the Riley Creek Watershed (lakes Riley, Rice Marsh Lake, Susan, Ann and Lucy) have been removed. The remaining density estimated to be approximately 50kg/ha no longer represents a severe ecological threat to this system. Further, the carp nursery grounds for this watershed (Rice Marsh Lake) were controlled again in 2010 using pipe barriers; monthly trapping net surveys show no indication of a return of young carp to this system. Water quality measurements demonstrate that there has been a second year of dramatic improvements in the native plant community and spring-time water clarity in the most damaged lake (Susan). Correlations between phosphorous, temperature, plankton and fish communities in 2010 also strongly suggest

that mid-summer bluegreen algae blooms in lakes Riley and Susan were driven by internal loading which went unchecked because of suppressed zooplankton communities. Accordingly, management of native fisheries is now being pursued and efforts to engineer solutions to control internal loading (now that the carp are gone) have been recommended. Sampling efforts for fish are now underway in the Purgatory Creek Watershed to validate developed techniques. Two peer-reviewed articles were published in 2010 and approximately a dozen public talks given presenting the study.

Submersed aquatic macrophytes continued to recover in Lake Susan after carp removal. Native plants were found in 71% of the littoral in June and although curlyleaf pondweed and Eurasian watermilfoil were found at 20 to 30% of sites they were not dominate. Biomass of native plants increased over the summer while curlyleaf pondweed declined and Eurasian watermilfoil appeared to be controlled by the abundant milfoil weevil. Transplants of water celery, water stargrass and bushy pondweed from Lake Ann in 2009 successfully overwintered and these plants became established in Lake Susan in 2010. Transplants of northern watermilfoil and muskgrass were not as successful. The native aquatic vegetation in Lake Susan should continue to recover although it is limited by water clarity in July and August. A healthy native plant community is present in Lake Ann, but Eurasian watermilfoil is abundant in depths  $\geq 1.5\text{m}$  and could become problematic in future years. The plant community in Lake Lucy is better than Lake Susan but not as abundant and diverse as Ann due to poor water clarity. There will be continued monitoring of the response to carp removal in the coming summer.

#### 4. Mitchell Lake Water Quality Improvement Project

The current focus on Mitchell Lake remains plant management to maintain recreational boating use. Weed harvesting again took place from May 31st to June 6th for curlyleaf pond weed

and again from July 23rd to July 25th for Eurasian milfoil. Roughly 900,000 pounds of weeds were removed from the lake and taken to a University of Minnesota Landscape Arboretum composting site. This year the curlyleaf pond weed was harvested before turion formation, which should mitigate further proliferation. Weed harvesting will occur again in 2011.

5. Lake Susan Shoreline Restoration

A shoreline habitat restoration grant application was reviewed by MnDNR. In January 2011 MnDNR awarded a grant for Lotus Lake shoreline improvements, but declined to award a grant for Lake Susan shoreline improvements.

C. Other Matters

1. Water Quantity and Quality Monitoring Data

The development of an integrated, comprehensive means for collecting, storing, and disseminating data concerning water resources has been very successful. The Engineer completed this collection and implemented web-based distribution and facilitated incorporation into State agency databases. The data is available through [www.rileywd.org](http://www.rileywd.org).

2. Local Plan Adoption and Implementation

The District was not asked to act upon any local water management plan approvals.

3. Annual Communication

The District published its annual communication following the January organizational meeting and held two broadly attended public community meetings, "Evening with the Watershed"; one in May and the other in December to report on work of the District. Copies of the presentations are available through [www.rileywd.org](http://www.rileywd.org), and are incorporated by reference.

#### 4. Solicitation of Interest Proposals

In 2009, the District solicited professional services by publication in local news papers and special mailings. Interest will again be solicited in 2011.

#### 5. Maintenance

The inspection of District structures ordered by the Managers was completed. Repairs have been coordinated the Hennepin County and the City of Eden Prairie to complete repairs. A separate inspection following completion of recommended maintenance will be made to confirm repair.

### IV. FINANCIAL AND AUDIT REPORTS

#### A. Reporting of Revenues and Expenditures

An audit report prepared by a certified public accounting firm is incorporated by reference. The audit includes a balance sheet, a classification of revenues and expenditures, an analysis of changes in final balances, and contains all additional statements considered necessary for full financial disclosure.

#### B. Budget Adopted for 2010

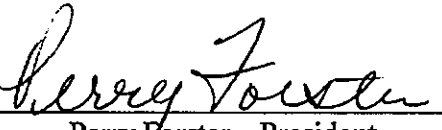
The adopted annual budgets are available through [www.rileywd.org](http://www.rileywd.org) and are incorporated by reference.

V. CONCLUSION

With successful completion of the Third-Generation Water Management Plan, the Board of Managers looks forward to continued success expediting meaningful restoration of beneficial uses of District waters.

Respectfully submitted,

RILEY-PURGATORY-BLUFF CREEK  
WATERSHED DISTRICT

By   
Perry Forster, President