The location of the meeting is scheduled for the Board Room at the Carver County Government Center

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Lower Minnesota River Watershed District

7:00 PM

Wednesday, August 15, 2018

County Board Room, Carver County Government Center, 2nd Floor

602 East 4th Street, Chaska, MN 55318

Agenda Item	Discussion
1. Call to order	A. Roll Call
2. Approval of agenda	
3. Citizen Forum	*Citizens may address the Board of Managers about any item not contained on the regular agenda. A maximum of 15 minutes is allowed for the Forum. If the full 15 minutes are not needed for the Forum, the Board will continue with the agenda. The Board will take no official action on items discussed at the Forum, with the exception of referral to staff or a Board Committee for a recommendation to be brought back to the Board for discussion or action at a future meeting.*
4. Consent Agenda	*All items listed under the consent agenda are considered to be routine by the Board of Managers and will be enacted by one motion and an affirmative vote of a majority of the members present. There will be no separate discussion of these items unless a Board Member or citizen request, in which event, the items will be removed from the consent agenda and considered as a separate item in its normal sequence on the agenda.* A. Approve Minutes for May 16, 2018, June 13, 2018 and July 18, 2018 Regular Meeting B. Receive and file Financial Reports C. Approval of Invoices for payment i. Barr Engineering - No-rise evaluation and model ii. Culligan Bottled Water - bottled water for LMRWD office iii. Rinke Noonan Attorneys at Law - for May 2018 legal services iv. Ames Construction, Inc. - for construction of Riley Creek Bank Stabilization v. Freshwater Society - for LMRWD contribution to Phase 2 landslide study vi. US Bank Equipment Finance - August 2018 copier rental vii. Naiad Consulting, LLC - for May 2018 admin services & expenses viii. Redpath and Company, Ltd. - for annual audit of 2017 financial records ix. TimeSaver Off Site Secretarial Services - for preparation of July 2018 meeting minutes
5. Public Hearing	A. 2019 Preliminary Budget and Certification of Levies Payable 2019

6. New Business/ Presentations	A. Recognition of Contributions by Yvonne Shirk to LMRWD B. 2017 Annual Report C. Call for public hearing
7. Old Business	A. 10831 Quebec Avenue South, Bloomington - Cost Share Application B. 2018 Financial Audit C. Engineering Services Update D. Dredge Management i. Funding for dredge material management ii. Vernon Avenue Dredge Material Management site iii. Private Dredge Material Placement E. Watershed Management Plan F. 2018 Legislative Action G. Education & Outreach - No new information to report since last update H. LMRWD Projects i. Eden Prairie Area #3 Stabilization ii. Riley Creek Cooperative Project with Riley/Purgatory/Bluff Creek WD iii. Seminary Fen ravine stabilization project iv. Analysis of Dakota County Monitoring v. East Chaska Creek - CSAH 61 & TH 41 Transportation improvements I. Project/Plan Reviews i. I494 Drainage ii. City of Chaska - Formacoat iii. City of Eden Prairie - Peterson Residential Development J. MPCA Soil Reference Values - No new information since last update
8. Communications	A. Administrator Report B. President C. Managers D. Committees E. Legal Counsel F. Engineer
9. Adjourn	Next meeting of the LMRWD Board of Managers is **Monday, September 17, 2018 Scott County Law Enforcement Center, 301 Fuller Street South, Shakopee, MN.** PLEASE NOTE THE CHANGE OF DATE AND LOCATION FOR THE SEPTEMBER MEETING

Upcoming meetings/Events

- USACE River Resource Forum - Monday, August 20 - Tuesday, August 21, 2018; Lansing Iowa
- MN Aquatic Invasive Species Research & Management Showcase - September 12, University of Minnesota, Continuing Education and Conference Center, 1890 Buford Avenue, St. Paul, MN
- Metro Children's Water Festival - Wednesday, September 26, 2018, 8:00am to 3:00pm, MN State Fair Grounds

- Pollinator Summit 2018 - Friday, October 12, 2018, 9:00am to 4:30pm, Minnesota Landscape Arboretum
- Minnesota Water Resource Conference - Tuesday, October 16 - Wednesday, October 17, 2018; River Centre, St. Paul
- Climate Adaption Conference - November 14, 2018, University of Minnesota, Continuing Education and Conference Center, 1890 Buford Avenue, St. Paul, MN

For Information Only

- WCA Notices
  - City of Carver - Notice of Application - Hawthorne Ridge
  - City of Carver - Notice of Decision - Hawthorne Ridge
  - City of Bloomington - Notice of Decision - MN Valley State Trail
  - City of Burnsville - Notice of Decision - Union Pacific RR Storm Water Improvements
- DNR Public Waters Work permits
  - None received
- DNR Water Appropriation permits
  - City of Bloomington - temporary appropriation application 2018-2861 - to allow for installation of city water main and storm sewer.
  - City of Savage - Magellan Pipeline, Construction dewatering permit 2018-1667 - to allow for inspection maintenance and repair of a petroleum pipeline (this pipeline runs through Savage fen and is the second section of pipeline repaired)

Future Manager Agenda Items list

- Public Hearing for Dredge Management Capital Project
- Election of Officers
- LMRWD Monitoring Plan
- Report of water quality testing of Minnesota River from MPCA
- Report on Flying Cloud Landfill
- Record retention policy
- AIS Policy
- Riverbank stabilization policy

Future TAC Agenda Items List

- LMRWD monitoring plan

Item 4A
LMRWD 8-15-2018

LOWER MINNESOTA RIVER WATERSHED DISTRICT

Minutes of Regular Meeting
Board of Managers
Wednesday May 16, 2018
County Board Room, Carver County Government Center, Chaska MN, 7:00 p.m.
Approved _____, 2018

1. **CALL TO ORDER AND ROLL CALL**
On Wednesday, May 16, 2018, at 7:00 PM in the Board Room of the Carver County Government Center, Chaska, Minnesota, President Shirk called to order the meeting of the Board of Managers of the Lower Minnesota River Watershed District (LMRWD) and asked for roll call to be taken. The following Managers were present: President Yvonne Shirk, Manager David Raby and Manager Jesse Hartmann. In addition, the following were also present: Linda Loomis, Naiad Consulting, LLC, LMRWD Administrator; Della Schall Young, Young Environmental Consulting Group, LLC, Technical Consultant; Lindsey Albright, Dakota SWCD; Troy Kuphal & Jon Utecht, Scott SWCD; Kim Musser & Tyler Grupa, Water Resource Center, Minnesota State University - Mankato; Ted Suss, Friends of the Minnesota Valley

2. **APPROVAL OF THE AGENDA**
Administrator Loomis noted that one Cost Share Application was included in the Packet, but not on the agenda. She recommended adding Item 5. F. v. - Glassen Cost Share application.

President Shirk made a motion to approve the agenda with the addition. The motion was seconded by Manager Raby. The motion carried unanimously.

3. **CITIZEN FORUM**
There were no citizens who wished to address the board.

4. **CONSENT AGENDA**
President Shirk Introduced the item.

A. Approval of Minutes for April 18, 2018 Regular Meeting
B. Receive and file Financial Report
C. Presentation of Invoices for payment
- **i. Burns & McDonnell - for February 2018 engineering services**
- **ii. Frenette Legislative Advisors - for January, February & March lobbying services**
- **iii. Pace Analytical Services - for Chloride monitoring of Ike's Creek**
- **iv. US Bank Equipment Finance - for April & May copier rental**
- **v. Coalition for a Clean Minnesota River - for sponsorship of MN River Congress**
- **vi. Metro Conservation District - for Children's Water Festival**
- **vii. Metro Sales - for copier maintenance agreement**
- **viii. Rinke Noonan - for March 2018 legal services**
- **ix. Steinkraus Development LLC - for April & May office rent**
- **x. Naiad Consulting, LLC - for February 2018 admin services & expenses**

President Shirk made a motion to approve the consent agenda. The motion was seconded by Manager Hartmann. The motion carried unanimously.

5. NEW BUSINESS/PRESENTATIONS

A. Presentation by Kim Musser from Minnesota River Data Center

Administrator Loomis introduced Kimberly Musser of the Water Resource Center at Minnesota State University - Mankato, which is home to the Minnesota River Data Center. Ms. Musser provided some handouts about the Water Resource Center and explained what the Minnesota River Data Center is.

She spoke about education programs that the Water Resource Center is working on and about some opportunities for the LMRWD to work with the Center, such as producing videos and story maps to demonstrate the history and importance of the river.

President Shirk asked about the current funding situation. Ms. Musser said that the Center has received two LCCMR Grants that are being used to push information out about what is working to address water management throughout the state

Manager Raby asked what this is all about and thought that the Center had requested that the LMRWD include funding for the Center in its request at the legislature. Administrator Loomis explained that the Center did not make that request, that Administrator Loomis thought it is an important resource that the District should support. Manager Raby asked about whether or not this should be adopted by MAWD. Administrator Loomis said the LMRWD could request that MAWD consider this too, but that lobbying resources at MAWD are limited it is likely that MAWD would not be able to actively lobby for this.

President Shirk asked if the LMRWD website has any links to the Data Center. Administrator Loomis said there are currently no links, but she will add some.

President Shirk thanked Ms. Musser

B. Presentation by Ted Suss from Friends of the Minnesota Valley

Ted Suss began by asking that the LMRWD support the work of the Water Resource Center and the Minnesota River Data Center. He said that is no other repository of information about the Minnesota River like the Data Center.

Mr. Suss explained that he serves as the Director of the Friends of the Minnesota Valley on a volunteer basis. He told the Board about the project the LMRWD and Friends did in 2017, where a booth was staffed at County Fairs throughout the MN River Basin to present to the public information about a variety of issues. Mr. Suss detailed the project and identified the County Fairs that were attended. He noted the difficulty in getting to Fairs because many of them fell on the same weekend. He said a booth was staffed at 9 County Fairs; Hennepin, Redwood, Watonwan, Scott, Blue Earth, Sibley, Carver, Brown and LeSueur. He said that former Congressman David Minge and Tim Lies a former Mayor of Belle Plaine was handing out information at the LMRWD booth in Scott County.

He reported on his experiences working with the intern that was hired for this project, Karl Schmidtke and told of some personal experiences he had over the course of the summer.

He spoke about the hand out Field to Stream by Dr. Les Everett of the U of M. and how he felt if we could get every farmer in the Basin to read that hand out, a lot of progress could be made in managing the flow of water. He noted that he is sensing a change in the attitudes of farmers and the public.

President Shirk asked if Friends was planning to replicate the project again this summer and Mr. Suss said no, he thinks there are other activities he thought would be more effective.

C. MN River Congress request

Mr. Suss reported that the 10th Minnesota River Congress is May 17th in Mankato. He invited the Managers to attend and gave a brief history of the MN River Congress and its goals. One of the goals is to increase the usage of cover crops. He said that he feels if more farmers were able to hear information about how successful cover crops are that more acreage would be planted with cover crops. He said there is a growing list of farmers who have adopted conservation farming practices and he would like to have those using cover crops share their success with other farmers.

He would like to set a goal to hold one educational meeting in each county in the Minnesota River Basin and invite farmers to come and listen to other farmers about the value of cover crops.

Mr. Suss asked the Board if it would be willing to fund a project such as this. He is looking for $5,000 to $10,000 over the next year to two years. He is also looking for other partners and would not ask the LMRWD to pay until he has found enough funding from other organizations.

He is planning to reach out to agricultural associations like the Corn Growers and Soybean Growers as well as CHS and others to become co-sponsors of this project.

Manager Hartmann asked specific questions about how cover crops are used., which were answered by Mr. Suss. Manager Raby asked Mr. Suss how he plans to entice farmers to attend. Mr. Suss said he is open to suggestions. He thought that he would try to think of incentives to get farmers to come to learn. He would like to get 100 farmers from each county to come to a meeting. He is hopeful that the Corn Growers Association might consider this as part of its sustainable farming efforts. He also plans to reach out to all the watershed districts in the Basin.

President Shirk asked about his time frame. Mr. Suss said he would like to schedule meetings after fall harvest, so he would like to have his funding in place by August first.

President Shirk asked if the Board was being asked to take action this evening. Administrator Loomis said that staff had no recommendation and that if the Board would like to take time think about Mr. Suss' proposal she would place the item on the Board's June agenda.

D. 2017 monitoring presentation by Scott County SWCD

Jon Utecht, Water Resource Technician, from the Scott Soil & Water Conservation District (SWCD) was in attendance to present the results of the monitoring they conducted in 2017. Mr. Utecht explained that the SWCD conducts thermal monitoring and the Watershed Outlet Monitoring Program (WOMP) on Eagle Creek, monitoring of the Dean Lake inlet and well monitoring near Eagle Creek and Savage fen on behalf of the LMRWD.

He started with the monitoring of Eagle Creek and thermal monitoring, which is done to support the trout population in Eagle Creek. The SWCD takes the temperature of Eagle Creek in 3 locations. Originally only two locations were monitored, upstream and downstream of TH 101. A third location was added mid-stream to determine the effect water coming from a nearby stormwater pond has on the temperature of the water. He showed a graph the showed several temperature spikes and he correlated the temperature spikes to precipitation.

He explained the water quality parameters observed in Eagle Creek and said that the WOMP station is supported by the Metropolitan Council. The results of the monitoring do not show anything to be concerned with. He noted there were some high levels of TSS and E. coli and

exceeded the standard for the geometric mean several times - enough to consider the Creek impaired for TSS and E. coli.

Mr. Utecht explained that Dean Lake is no longer considered a lake; it is now a wetland and the standard have changed accordingly. He said there is a logger in place to monitor water level and flows. TSS in 2016 seemed to be really high and in 2017 seemed to correspond to rain events.

Savage fen wells show little change throughout the year and when you look back across the past ten years the water levels seem to be on an upward trend. The Eagle Creek wells and the bluff wells show the same trend.

He explained 2018 monitoring plans and that it is good to have a long term historical data of thermal monitoring, as well as other monitoring data. He then asked the Managers if they had any questions. President Shirk asked if Mr. Utecht has noticed any trout downstream past the logger on Eagle Creek. Mr. Utecht said he couldn't say where the trout are found in the Creek.

President Shirk asked if the Board needed to approve an agreement for 2018 monitoring. Administrator Loomis said that an agreement was presented to the Managers for approval and that we are a little behind in getting this approved, as monitoring for 2018 has already begun. She said the agreement include some additional monitoring, such as Chloride levels. She also noted that staff is preparing a monitoring plan for the LMRWD that will be ready at a future meeting.

Manager Raby asked about the increase in the total amount requested in the agreement compared to the costs incurred in past years. Troy Kuphal, District Director for Scott SWCD. Mr. Kuphal stated that the contract amount for continuing current monitoring is based on historical experience. The cost for additional monitoring is based on an educated guess.

Administrator Loomis noted that she had asked the SWCD to include additional monitoring. She also noted that although the agreement has a not to exceed amount, the SWCD bills the LMRWD based on actual time and expenses and has never reached the not to exceed amount. Manager Raby asked if that is still what they are proposing to do. Administrator Loomis said yes. Manager Raby further asked if the Met Council reimburses the LMRWD for the cost of monitoring the WOMP station and asked if that amount is a set $5,000. She stated yes the amount is set at $5,000 and reminded the Managers that they had approved that agreement at a meeting earlier this year.

Mr. Kuphal stated that the SWCD appreciates the relationship the SWCD has with the LMRWD and that they are happy to be able to provide services to the District. HE then commented on the presentation made by Ted Suss and informed the Managers that Scout County is investing $100,000 toward cover crops this year. He also said the County is looking to change agricultural use of chemical because of the residual effect of chemicals in the soil. He said the SWCD would be willing to help get farmers to attend a meeting like Mr. Suss had described and would also help with the message.

Manager Raby move approval of the agreement between the Scott SWCD and the LMRWD for 2018 monitoring services. Manager Hartmann seconded the motion, which was unanimously approved.

E. Corp of Engineers - Lower Minnesota River Watershed District Storage Assessment

Administrator Loomis explained the background and how this issue came before them. She reminded the Managers of the Corp's Minnesota River Integrated Basin Study. She said that this study is wrapping up and the Corp is able to get funding (50%) for spin-off studies, if they can find local partners. She said the Corp provided brief description of the scope of possible spin-off

studies and that they are looking for the District to provide a letter indicating interest in participating. The letter would not commit the District to anything and the studies would not move forward unless a state agency would sign on as a partner. She said she is asking the Managers if they are interested.

Manager Raby said he thinks that both studies could benefit the District in the future and he thinks the District should be interested. He is not sure what the financial commitment would be, but he would lean toward approving participation. Administrator Loomis said she did tell the Corp that the LMRWD would not be able to provide 50% of the funding but could participate at a lesser level.

Staff was directed to prepare a letter.

F. 2018 Cost Share Program

Administrator Loomis said the District has received a number of Cost Share Applications:

i. City of Carver

Administrator Loomis said this project is for improvements to the city's stormwater system. Her concern is that the city did not work with the District when planning this project. She noted staff would discuss this concern with the city. She said staff is recommending approval

Manager Raby said he agrees this project appears to be a good project and should help reduce the sediment reaching the river assuming the city maintain the system.

President Shirk made a motion to approve the Cost Share Project application for the City of Carver subject to a maintenance agreement. Manager Raby seconded the motion. The motion carried unanimously.

ii. 10831 Quebec Avenue South - Bloomington (Larson)

Administrator Loomis explained this project. Manager Raby said he was unclear about the amount being requested. Administrator Loomis said the request is for $1,374.00. The resident plans to install rain barrels and plant evergreen.

Manager Raby said he wasn't sure this location is in the watershed. Administrator Loomis said that it is. Manager Raby questioned the value of this project to the watershed. He believes the project will remove some water, but he is not sure the project is the type envisioned by the District's program.

After further discussion the Board decided this project did not qualify for the program and the applicant should be invited to come speak to the board.

iii. Burnsville (Schwartz)

This project and the nest two projects are all located in the city of Burnsville and came through a program of the Dakota SWCD. The amounts of grant detailed in the meeting are incorrect and all three are looking for $250 each. The Dakota SWCD conducted a rain garden workshop and three LMRWD residents attended and wanted to construct rain gardens.

Administrator Loomis noted that the LMRWD does not have an agreement with the Dakota SWCD and the District and the SWCD is working to put together an agreement by which the SWCD would provide technical assistance to resident of Dakota County that reside in the LMRWD.

This property (Schwartz) falls entirely within the District's Steep Slope Overlay Zone and Administrator Loomis said she spoke with the SWCD that the District is not comfortable with a rain garden being constructed in the Steep Slope Zone. This project will change from a rain garden to a native planting.

Lindsey Albright, from the Dakota SWCD spoke and relayed her conversation with the resident. Administrator Loomis explained LMRWD staff is planning to put together information for residents regarding management of steep slopes and that maybe the SWCD would be interested in conducting workshops on steep slope management.

Della Young suggested that the agreement should address the overlay districts and what the LMRWD will allow to happen in that space. She said it would be helpful for the SWCD if Dakota GIS could have the Steep Slope Overlay Zone as a layer.

Manager Raby asked if the layer had been made available to all the stakeholders

President Shirk made a motion to approve all three Cost Share Applications, with the changes to the property in the Steep Slope Overlay Zone located in Burnsville. Manager Raby seconded the motion. The motion carried unanimously

iv. Burnsville (Zepeda)
See discussion under 5.F.iii. above.

v. Burnsville (Glassen)
See discussion under 5.F.iii. above.

6. OLD BUSINESS

A. Hennepin County Landslide Inventory
Administrator Loomis said that she had nothing to add to what was in the meeting packet. Freshwater Society is still looking for partners to fund the project. No action needs to be taken at this meeting.

B. Metro-area Watershed Based Funding Pilot Program
Administrator Loomis said Hennepin County held its meeting today. The County is planning to use 10% of the total allocation to fund a county-wide Chloride project. The remaining funds would be allocated to the watershed organizations based 50/50 on property market values and area of the watershed. In the Minnesota River Basin, the four watershed management organizations, Riley Purgatory Bluff Creek WD, Nine Mile Creek WD, Richfield Bloomington WMO and the LMRWD have agreed to pool the allocation to fund a cost share program to upgrade equipment to address chloride. Managers will see the proposal as it is developed.

She explained that back-up projects have been submitted in each county except Dakota. She detailed the projects that have been submitted. She said staff is looking for Managers okay to go ahead to submit proposed projects to the counties for submission to BWSR.

Manager Hartmann asked how the projects would be financed and if there is a cost right now to the LMRWD. Administrator Loomis said BWSR is requiring a 10% match and it would be up to the District how much match it contributed to a project. No funds are due at this time and would not be expended until the project was implemented.

President Shirk made a motion to approval the submission of the recommended projects under the Metro-area Watershed Based Funding Program to the counties and BWSR. Manager Hartmann seconded the motion. The motion carried unanimously.

C. MAWD Summer Tour

Administrator Loomis explained that MAWD's Summer Tour will be held in the Metro Area in June and that the LMRWD will take the lead for arranging the MN River Tour. MAWD will be a co-sponsor Manager Hartmann asked how registration will be handled. Administrator Loomis explained that MAWD participants will register through MAWD and that those invited by the LMRWD and RPBCWD will register through a site created by RPBCWD.

The Board discussed the Minnesota gift ban and to make sure that those accepting the invitation from the LMRWD and RPBCWD does not run afoul of the gift ban.

Administrator Loomis said she will not know the cost until she is able to determine whether we can get a barge or if we will have to book a boat through the Padelford Packet Boat Company.

D. Dredge Management

i. Review Process for funding of maintenance of Navigation Channel

There is nothing to report other than what was in the meeting packet.

ii. Vernon Avenue Dredge Material Management site

iii. Private Dredge Material Placement

Old material has not yet been removed from the site and new material has not been brought in because of high water on the river. Manager Hartmann asked if end uses had been found for the private material. Administrator Loomis explained that the material has to be taken off site, because of the permits. Manager Hartmann offered some suggested contacts.

E. Watershed Management Plan

Staff had planned to walk the Managers through the implementation plan in Section 4. Administrator Loomis turned the presentation over to Della Young. Manager did not receive the implementation in time to review it for the meeting, so action will be deferred to the June meeting.

Ms. Young said staff's priority was to get Appendix K out to the Stakeholders for final feedback. She said legal counsel is still looking at Appendix K to make sure the section that addressed the taking issue is still appropriate, since everything around it has changed. The Implementation Plan is all of the projects and grant funding. Staff has made sure that all projects anticipated under the Watershed Based Funding are in the implementation plan. The studies have not changed, it is only capital projects.

Ms. Young said that the Plan would not be sent to BWSR until the Board has had an opportunity to look at the complete plan. She explained how the projects were allocated across the years. She pointed out where the projects are explained and told the Managers that they can adjust the plan annually when they approve the budget.

She noted that there is a project that we are waiting for information about. It is a project in the Carver WMO on West Chaska Creek. The WMO asked if the LMRWD would be interested in participating in this project, so it has been included in the plan.

F. 2018 Legislative Action

Administrator Loomis said she sent the Managers a legislative update provided by MAWD that sums up the session well. She told Managers about meetings she had with legislators.

G. Education and Outreach Plan
Administrator Loomis had nothing to report on this item.

H. LMRWD Projects

i. Eden Prairie Area #3 Stabilization
No information other than what was reported in the Executive Summary.

ii. Riley Creek Cooperative Project/Hennepin County Flying Cloud Drive/CSAH 61 reconstruction project
Managers had asked about the availability of funds for this project. She provided Managers the information. She reminded the Managers that they had committed $150,000 to RPBCWD for Lower Riley Creek. She said she is working with RPBCWD to get a cooperative agreement. This project (the cooperative project with RPBVWD) has been included in the implementation plan.

iii. Floodplain Lake Coring Project with Freshwater Society
No information other than what was reported in the Executive Summary.

iv. Seminary Fen ravine stabilization project
No information other than what was reported in the Executive Summary.

v. Analysis of Dakota County Groundwater Project
No information other than what was reported in the Executive Summary.

vi. East Chaska Creek/ CSAH 61 & TH 41 Transportation Improvement Project
No information other than what was reported in the Executive Summary.

I. Project Reviews

i. City of Burnsville - Dodge of Burnsville
Administrator Loomis said she received the review of this project from technical staff today and will be notifying the city with our comments.

ii. City of Chaska - MCES L-71 lift station project
The review of this project by technical staff was received today and the proponent will be notified. The proponent is Met Council.

iii. City of Burnsville - Xcel Energy Black Dog Plant
No information other than what was reported in the Executive Summary.

vi. MNDOT - I35W Bridge replacement
No information other than what was reported in the Executive Summary.

vii. City of Bloomington - MN Valley State Trail
Ms. Young mentioned that staff is looking at the floodplain impacts for this project.

J. Boundary Change - RPBCWD, NMCWD, MCWD and LMRWD
Administrator Loomis said BWSR approved the boundaries changes and this is in the packet for Managers information

K. MPCA Soil Reference Values - no change since last update
No new information since last update.

7. COMMUNICATIONS

A. Administrator Report: Administrator Loomis said she did not send out an Administrator report, but she wanted to inform the Board, that she made a presentation to the annual meeting of the Friends of Pool 2. She has also spoken to Diane Lynch, the Administrator of the Prior Lake/ Spring Lake Watershed District. They are renegotiating the Joint Powers Agreement

between the cooperators for the Prior Lake Outlet Channel. She said she has discussed whether or not the LMRWD should become a party to the agreement. She said that although the outlet channel is not considered a public water it is on the 2018 303d list of impaired waters. Administrator Loomis said the LMRWD may want to be a party to the agreement if an implementation plan is developed to address the impairment and waste load allocations are assigned. She informed Managers that she has had discussion with Carver County Water Management Organization around the city of Chaska's approach toward stormwater management.

Manager Hartmann asked if the Administrator has had any news about filling the vacancies on the Board. Administrator Loomis said she has been contacted by a resident of Bloomington that expressed interest in the open position for Hennepin County. SHe is hopeful that that position will be filled soon.

B. President: No report
C. Managers: No report
D. Committees: No report
E. Legal Counsel: No report
F. Engineer: No report

8. ADJOURN

President Shirk made a motion to adjourn. Manager Hartmann seconded the motion. The meeting was adjourned at 8:57 PM.

_____
Dave Raby, Secretary

Attest:

_____
Linda Loomis, Administrator

Lower Minnesota River Watershed District
General Fund Financial Report
Fiscal Year: January 1, 2018 through December 31, 2018
Meeting Date: August 15, 2018

(UNAUDITED)

Item 4.B.
LMRWD 8-15-18

BEGINNING BALANCE	**30-Jun-18**			**$ 1,221,795.95**
ADD:				
General Fund Revenue:				
Taxes Carver County			$ 22,674.64	
Taxes Dakota County			$ 39,413.13	
Taxes Hennepin County**			$ 169,727.82	
Taxes Scott County*			$ 52.12	
Total Revenue and Transfers In				**$ 231,867.71**
DEDUCT:				
Warrants:				
407380	Barr Engineering	No-rise evaluation & model	$ 3,438.00	
408048	Culligan Bottled Water	bottled water for Chaska office	$ 20.50	
408076	Rinke Noonan	May 2018 legal services	$ 2,721.00	
408338	Ames Construction, Inc.	Riley Creek bank stabilization	$ 73,846.49	
408350	Freshwater Society	Phase II landslide study	$ 10,000.00	
407426	US Bank Equipment Finance	August 2018 copier rental payment	$ 231.91	
100006076	Naiad Consulting LLC	May 2018 admin service & exp.	$ 11,293.65	
100006082	Redpath and Company	2017annual financial audit	$ 13,520.00	
100006195	TimeSaver Off Site Secretarial	June 2018 meeting minutes prep	$ 142.00	
Total Warrants/Reductions				**$ 115,213.55**
ENDING BALANCE	**31-Jul-18**			**$ 1,338,450.11**

* Includes $52.12 of Payments in Lieu
** Includes $285.82 of Payments in Lieu

The state of Minnesota makes Payment in Lieu of Property Taxes to offset the costs of maintaining, and the loss of tax base from, natural resource lands.

Lower Minnesota River Watershed District
General Fund Financial Report
Fiscal Year: January 1, 2018 through December 31, 2018
Meeting Date: August 15, 2018

FY 2018

EXPENDITURES	2018 Budget	April Actual	YTD 2018	Over (Under) Budget
Administrative expenses	$ 250,000.00	$ 24,208.06	$ 120,882.25	$ (129,117.75)
Cooperative Projects				
Gully Erosion Contingency Fund	$ -	$ -	$ -	$ -
Ravine Stabilization at Seminary Fen in Chaska	$ -	$ -	$ -	$ -
Eden Prairie Bank Stabilization Area #3	$ -	$ -	$ -	$ -
Eagle Creek	$ -	$ -	$ -	$ -
USGS Sediment & Flow Monitoring	$ 18,500.00	$ -	$ -	$ (18,500.00)
509 Plan Budget				
Resource Plan Implementation				
Sustainable Lakes Management Plan (Trout Lakes)	$ 50,000.00	$ -	$ -	$ (50,000.00)
Geomorphic Assessments (Trout Streams)	$ 50,000.00	$ -	$ -	$ (50,000.00)
Paleolimnology Study (Floodplain Lakes)	$ 50,000.00	$ -	$ -	$ (50,000.00)
Fen Stewardship Program	$ 75,000.00	$ -	$ -	$ (75,000.00)
District Boundary Modification	$ 10,000.00	$ -	$ -	$ (10,000.00)
East Chaska Creek Treatment Wetland Project	$ 10,000.00	$ -	$ -	$ (10,000.00)
Minnesota River Sediment Reduction Strategy	$ 25,000.00	$ -	$ -	$ (25,000.00)
Seminary Fen - gap analysis	$ -	$ -	$ -	$ -
Data Assessments and Program Review	$ -	$ -	$ -	$ -
Dakota County groundwater modeiling	$ -	$ -	$ -	$ -
Riley Creek Cooperatice Project	$ 50,000.00	$ 73,846.49	$ 73,846.49	$ 23,846.49
Local Water Management Plan reviews	$ 12,000.00	$ -	$ 4,511.38	$ (7,488.62)
Project Reviews	$ 16,000.00	$ -	$ 2,784.38	$ (13,215.62)
Monitoring	$ 65,000.00	$ -	$ 8,419.92	$ (56,580.08)
Monitoring Data Analysis				$ -
Technical Assistance				$ -
Watershed Management Plan				$ -
Plan Amendment	$ 50,000.00	$ 2,253.50	$ 49,298.40	$ (701.60)
Vegetation Management Standard/Plan	$ -	$ -	$ -	$ -
Public Education/CAC/Outreach Program	$ 30,000.00	$ 1,000.00	$ 15,143.98	$ (14,856.02)
Cost Share Program	$ 20,000.00	$ 10,000.00	$ 10,000.00	$ (10,000.00)
Savage Fen/Dakota Ave. Ravine Stabilization Project	$ -	$ -	$ -	$ -
Nine Foot Channel	$ 50,000.00	$ -	$ -	$ (50,000.00)
Dredge Site Improvements	$ 240,000.00	$ 3,905.50	$ 9,394.74	$ (230,605.26)
Total:	$ 1,071,500.00	$ 115,213.55	$ 294,281.54	

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 5. A. - Public Hearing - 2019 Preliminary Budget and Certification of Levies Payable 2019

Prepared By
Linda Loomis, Administrator

Summary
In accordance with MN Statutes 103D.911 Subd. 2, "on or before September 15 of each year, the mnagaers shall adopt a budget fro the next year and decide on the total amount necessary to be raised from ad valorem tax levies to meet the watershed district's budget." Further, the Statute requires in Subd. 1(a) that "Before adopting a budget, the managers shall hold a public hearing on the proposed budget."

The total budget proposed for the year 2019 is $1,267,255.00 and proposes total levies of $725,000; an administrative levy of $250,000 and a planning and implementation levy of $475,000. The remainder of the budget will be paid for using the District's fund balance. The levies will be allocated to the counties as follows:

Carver County	$48,442.33
Dakota County	$76,001.75
Hennepin County	$276,570.10
Scott County	$323,985.83
TOTAL	**$725,000**

Notice of the public hearing was published in the Sunday edition of the Star Tribune on August 5th and then again on August 12th.

The proposed 2019 Budget is attached, along with resolutions certifying the tax levies for each county.

Attachments
2019 Proposed budget.
RESOLUTION 18-07 LOWER MINNESOTA RIVER WATERSHED DISTRICT PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR CARVER COUNTY FOR TAXES PAYABLE 2019 AND ADOPTING 2019 BUDGET
RESOLUTION 18-08 LOWER MINNESOTA RIVER WATERSHED DISTRICT PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR DAKOTA COUNTY FOR TAXES PAYABLE 2019 AND ADOPTING 2019 BUDGET
RESOLUTION 18-09 LOWER MINNESOTA RIVER WATERSHED DISTRICT PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR HENNEPIN COUNTY FOR TAXES PAYABLE 2019 AND ADOPTING 2019 BUDGET
RESOLUTION 18-10 LOWER MINNESOTA RIVER WATERSHED DISTRICT PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR SCOTT COUNTY FOR TAXES PAYABLE 2019 AND ADOPTING 2019 BUDGET

Recommended Action
Open Public hearing, take public testimony, close public hearing and Motions to adopt resolutions.

Proposed Levy 2019

General Fund	250,000.00
Planning and Implementation Fund	475,000.00
Apportioned Payable 2019 Levy	**725,000.00**

County	**Net Tax Capacity % Distribution**	**Apportioned Payable 2019 Levy**
Carver	6.6817%	48,442.33
Dakota	10.4830%	76,001.75
Hennepin	38.1476%	276,570.10
Scott	44.6877%	323,985.83
Watershed Total	**100.0000%**	**725,000.00**

2019 proposed LMRWD Budget for Administration Operations
2017/2018 Adopted Budget - 2018 Actuals/Projected - 2019 Proposed

	Account	Adopted 2017	Adopted 2018	YTD 2018	Projected 2019	Proposed 2019
	Revenues:					
	General Property Tax	$ 614,755.78	$ 725,000.00	$ 154,086.71	$ 725,000.00	$ 725,000.00
	Interest Revenue	$ 26,684.00				
	License Revenue from placement of dredge					$ 25,000.00
	Revenue from sale of dredge material	$ 32,128.00	$ 30,000.00		$ -	$ 5,000.00
	Grant income		$ 5,500.00	$ 4,500.00	$ 5,500.00	$ 5,500.00
	State of MN Grant for Dredge Material Mgmt.				$ 240,000.00	$ 240,000.00
	Metro-area Watershed Based Funding Grant					$ 136,055.00
	Miscellaneous Income	$ 1,210.00				
	Total Revenues	$ 674,777.78	$ 760,500.00	$ 158,586.71	$ 970,500.00	$ 1,136,555.00
	Expenses:					
10	Wages-General	$ -	$ -	$ -	$ -	$ -
11	Severance Allowance	$ -				
12	Benefits	$ -	$ -	$ -	$ -	$ -
13	PERA Expense	$ -	$ -			
14	Payroll Tax (FICA/Medicare)	$ -	$ -	$ -	$ -	$ -
15	Unemployment compensation	$ -	$ -			
16	Manager Per Diem	$ 9,000.00	$ 9,000.00	$ -	$ 6,000.00	$ 9,000.00
17	Manager Expense (mileage/food/registrations)	$ 3,500.00	$ 4,000.00	$ -	$ 3,500.00	$ 4,000.00
18	Telecommunications-Cell-Internet/Phone	$ -	$ -	$ -	$ -	$ -
19	Postage	$ 1,000.00	$ 500.00	$ 20.00	$ 1,000.00	$ 500.00
20	Photocopying	$ 1,000.00	$ 2,000.00	$ 649.00	$ 600.00	$ 2,000.00
21	Newsletter Expense(Web Articles)	$ -	$ -		$ -	$ -
22	Legal Notices-General	$ 1,500.00	$ 1,500.00	$ 1,066.00	$ 1,000.00	$ 1,500.00
23	Dues	$ 4,000.00	$ 7,500.00	$ 7,500.00	$ 4,000.00	$ 7,500.00
24	Publications	$ -		$ -	$ -	
25	Professional Services-General	$ 132,400.00	$ 126,100.00	$ 38,997.00	$ 130,000.00	$ 120,100.00
26	Legal Fees-General	$ 11,000.00	$ 11,000.00	$ 2,559.00	$ 11,000.00	$ 11,000.00
27	Accounting/Payroll Fees	$ 4,700.00	$ 5,000.00	$ 2,483.00	$ 4,578.00	$ 5,000.00
28	Engineering-General	$ 20,000.00	$ 20,000.00	$ 8,592.00	$ 11,000.00	$ 20,000.00
29	Audit Fees	$ 13,500.00	$ 14,000.00	$ 190.00	$ 13,212.00	$ 14,500.00
30	Equipment-Maintenance	$ 500.00	$ 500.00	$ 136.00	$ 500.00	$ 500.00
31	Taxable meal reimbursement	$ 500.00	$ 500.00	$ 89.00	$ 300.00	$ 500.00
32	Mileage	$ 6,000.00	$ 6,000.00	$ 1,083.00	$ 5,000.00	$ 6,000.00
33	Training & Education	$ 1,500.00	$ 1,500.00	$ 124.00	$ 1,500.00	$ 1,500.00
34	Lodging/ Staff Travel	$ 1,500.00	$ 1,500.00	$ -	$ -	$ 1,500.00
35	Rent	$ 8,000.00	$ 8,000.00	$ 4,551.00	$ 8,000.00	$ 8,000.00
36	Web Expense-Design & Hosting (Moved to E & O)	$ -		$ -	$ -	
37	Equipment-Lease	$ 3,000.00	$ 3,000.00	$ 1,689.00	$ 3,000.00	$ 3,000.00
38	Insurance & Bonds	$ 9,000.00	$ 10,000.00	$ 6,056.00	$ 9,000.00	$ 10,500.00
39	Bank Charges		$ -		$ -	$ -
40	Cleaning Service	$ -	$ -	$ -	$ -	$ -
41	Meeting Supplies/Expense	$ 100.00	$ 100.00	$ 59.00	$ 100.00	$ 100.00
42	Office Supplies	$ 300.00	$ 300.00	$ 121.00	$ 300.00	$ 300.00
43	Equipment-General	$ -			$ -	
44	Miscellaneous-General	$ 3,000.00	$ 3,000.00	$ 706.00	$ 3,000.00	$ 3,000.00
45	Lobbying	$ 15,000.00	$ 15,000.00	$ 20,000.00	$ 20,000.00	$ 20,000.00
	Total Expense for Administration:	$ 250,000.00	$ 250,000.00	$ 96,670.00	$ 236,590.00	$ 250,000.00

2019 Proposed Budget

2018 Adopted Budget - 2018 Actuals/Projected - 2019 Proposed

	Account	2018 Adopted	YTD 2018	Projected 2018	Proposed 2019
	Revenues:				
5	General Property Tax				
6	Carver County	$ 42,113.07	$22,674.64	$ 42,113.07	$ 48,442.33
7	Dakota County	$ 73,373.63	$39,413.13	$ 73,373.63	$ 76,001.75
8	Hennepin County	$ 316,479.90	$169,727.82	$ 316,479.90	$ 276,570.10
9	Scott County	$ 293,033.40	$154,138.83	$ 293,033.40	$ 323,985.83
10	**Total Levy:**	**$ 725,000.00**	$385,954.42	**$ 725,000.00**	**$ 725,000.00**
11	Interest Revenue	$ 26,000.00			
12	Met Council Grant-(WOMP Station Monitoring)	$ 5,500.00	$ 4,500.00	$ 5,500.00	$ 5,500.00
	State of MN Grant for Dredge Material Management	$ 240,000.00		$ 240,000.00	$ 240,000.00
	Metro-Area Watershed Based funding grants				$ 136,055.00
13	Revenue for use of Vernon Avenue dredge for dewatering private material	$ 25,000.00		$ 25,000.00	$ 25,000.00
14	Revenues from sale of dredge material	$ 5,000.00		$ 5,000.00	$ 5,000.00
16	**Total Revenues:**	**$ 1,026,500.00**	**$390,454.42**	**$ 1,000,500.00**	**$ 1,136,555.00**
	Expenses:				
18	**Administration**	$ 250,000.00	$ 96,674.19	$ 250,000.00	$ 250,000.00
20	**Cooperative Projects**				
21	Eden Prairie Bank Stabilization -#3			$ -	$ -
25	Eagle Creek			$ -	$ -
30	Gully Erosion Contingency			$ -	$ -
31	USGS	$ 18,500.00		$ 18,500.00	$ 19,700.00
34	Ravine Stabilization at Seminary Fen in Chaska			$ 110,400.00	$ -
35	Riley Creek Cooperative Project with RPBCWD	$ 50,000.00		$ 75,000.00	
40	**509 Plan Budget**				
41	Resource Plan Implementation				
42	Assumption Creek Hydrology Restoration Project				$ 30,000.00
43	Carver Creek restoration Project				$ 80,000.00
44	Groundwater Screening Tool Modal				$ 50,000.00
45	Eagle Creek (East Branch) Project				$ 10,000.00
46	East Creek Bank Stabilization Project				$ 50,000.00
47	East Creek Water Quality Treatment Project				$ 50,000.00
48	Minnesota River Floodplain Model Feasibility Study				$ 30,000.00
49	Schroeder's Acres Park/Savage Fen Stormwater Management Project				$ 39,555.00
50	Spring Creek Project				$ 45,000.00
51	West Chaska Creek Project				$ 50,000.00
52	Sustainable Lakes Management Plan (Trout Lakes)	$ 50,000.00		$ 50,000.00	
53	Geomorhpic Assessments (Trout Streams)	$ 50,000.00		$ 50,000.00	
54	Paleolimnology Study (Floodplain Lakes)	$ 50,000.00		$ 50,000.00	
55	Fen Stewardship Program	$ 75,000.00		$ 75,000.00	$ 25,000.00
56	District Boundary Modification Project	$ 10,000.00		$ 10,000.00	
57	East Chaska Creek Treatment Wetland Project	$ 10,000.00		$ 10,000.00	
58	Minnesota River Sediment Reduction Strategy	$ 25,000.00		$ 25,000.00	$ 25,000.00
62	Riley Creek Cooperative Project	$ 50,000.00		$ 74,000.00	
63	Local Water Management Plan reviews	$ 12,000.00	$ 4,511.38	$ 12,000.00	$ 12,000.00
64	Project Reviews	$ 16,000.00	$ 2,784.38	$ 16,000.00	$ 16,000.00
65	Monitoring	$ 65,000.00	$ 8,419.92	$ 65,000.00	$ 65,000.00
66	Monitoring Data Analysis	$ -			
67	Technical Assistance	$ -			
68	Watershed Management Plan				
69	Next Generation Watershed Management Plan	$ -			
70	Plan Clarification and proposed rules		$ -	$ -	
71	Plan Amendment	$ 50,000.00	$ 47,044.90	$ 50,000.00	
72	Vegetation Management Standard/Plan				$ 50,000.00
73	Public Education/Citizen Advisory Committee/Outreach Program	$ 30,000.00	$ 14,143.98	$ 30,000.00	$ 30,000.00
74	Cost Share Program	$ 20,000.00		$ 20,000.00	$ 20,000.00
75	Nine Foot Channel	$ 50,000.00		$ 50,000.00	$ 80,000.00
76	Dredge Site Restoration	$ 240,000.00	$ 5,489.24	$ 240,000.00	$ 240,000.00
91	**Total Non-adminsitrative Expenses:**	$ 821,500.00	$ 82,393.80	$ 1,049,291.00	$ 1,017,255.00
93	Revenue less Expenses	$ (45,000.00)	$ 211,386.43	$ (298,791.00)	$ (130,700.00)
95	Beginning Fund Balance - January 1	$ 1,289,341.10			$ 1,244,341.10
96	Total Revenue	$ 1,026,500.00			$ 1,136,555.00
97	Total Expenses	$ (1,071,500.00)			$ (1,267,255.00)
98	Ending Fund Balance - December 31 (projected)	$ 1,244,341.10			$ 1,113,641.10

Manager _____ introduced the following resolution and moved its adoption:

RESOLUTION 18-07

LOWER MINNESOTA RIVER WATERSHED DISTRICT

PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR CARVER COUNTY

FOR TAXES PAYABLE 2019

AND ADOPTING 2019 BUDGET

WHEREAS, the Board of Managers of the Lower Minnesota River Watershed District ("LMRWD") has proposed a total budget of One Million Two Hundred Sixty Seven Thousand Two Hundred Fifty Five Dollars ($1,267,255) for the fiscal year commencing January 1, 2019; and

WHEREAS, the proposed budget requires Seven Hundred Twenty Five Thousand Dollars ($725,000) to be raised from an ad valorem tax levy on taxable property in the LMRWD, apportioned according to the attached Schedule A, for the purpose of paying administrative expenses (Minnesota Statutes § 103D.905 Subd. 3) of Two Hundred Fifty Thousand Dollars ($250,000) and providing for a planning and implementation fund (Minnesota Statutes § 103B.241) of Four Hundred Seventy Five Thousand Dollars ($475,000).

NOW, THEREFORE, BE IT RESOLVED, that the Secretary, in accordance with Minnesota Statutes, shall certify to the Auditors of Carver County, the following sum to be raised by levy on all taxable property in the Lower Minnesota River Watershed District payable in the year 2019 for the purposes noted above: Forty Eight Thousand Four Hundred Forty Two and 33/100 Dollars ($48,442.33), as provided in Minnesota Statutes, Sections 103D.911 and 103D.915; and

BE IT FURTHER RESOLVED by the Board of Managers of the LMRWD that the 2019 Preliminary Budget as proposed is hereby approved and adopted.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 15th day of August, 2018.

_____

Jesse Hartmann, Vice President

ATTEST:

_____

David L. Raby, Secretary/Treasurer

SCHEDULE A

District 060 - Lower MN River Watershed

The following table was presented for the Managers' consideration with regard to the proposed amounts to be levied in each separate county, based upon the net tax capacities available:

Preliminary Certification of Apportioned Levies

Payable 2019

1)	General Fund (M.S. 103D.905, Subd.3)	$250,000.00
2)	Planning and Implementation Fund (M.S. 103B.241)	$475,000.00
3)	Payable 2017 Property Tax Levy	$725,000.00

County	(4 Payable 2018 Taxable Net Tax Capacity	(5) Net Tax Capacity Percent Distribution	(6) Apportioned Payable 2017 Levy Column(4) x (5)
Carver	$6,240,151	6.6817%	$48,442.33
Dakota	$9,790,297	10.4830%	$76,001.75
Hennepin	$35,626,906	38.1476%	$276,570.10
Scott	$41,734,806	44.6877%	$323,985.83
TOTAL	$93,392,160	100.00%	$725,000.00

Manager _____ introduced the following resolution and moved its adoption:

RESOLUTION 18-08

LOWER MINNESOTA RIVER WATERSHED DISTRICT

PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR DAKOTA COUNTY

FOR TAXES PAYABLE 2019

AND ADOPTING 2019 BUDGET

WHEREAS, the Board of Managers of the Lower Minnesota River Watershed District ("LMRWD") has proposed a total budget of One Million Two Hundred Sixty Seven Thousand Two Hundred Fifty Five Dollars ($1,267,255) for the fiscal year commencing January 1, 2019; and

WHEREAS, the proposed budget requires Seven Hundred Twenty Five Thousand Dollars ($725,000) to be raised from an ad valorem tax levy on taxable property in the LMRWD, apportioned according to the attached Schedule A, for the purpose of paying administrative expenses (Minnesota Statutes § 103D.905 Subd. 3) of Two Hundred Fifty Thousand Dollars ($250,000) and providing for a planning and implementation fund (Minnesota Statutes § 103B.241) of Four Hundred Seventy Five Thousand Dollars ($475,000).

NOW, THEREFORE, BE IT RESOLVED, that the Secretary, in accordance with Minnesota Statutes, shall certify to the Auditors of Dakota County, the following sum to be raised by levy on all taxable property in the Lower Minnesota River Watershed District payable in the year 2019 for the purposes noted above: Seven Six One and 75/100 Dollars ($76,001.75), as provided in Minnesota Statutes, Sections 103D.911 and 103D.915; and

BE IT FURTHER RESOLVED by the Board of Managers of the LMRWD that the 2019 Preliminary Budget as proposed is hereby approved and adopted.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 15th day of August, 2018.

_____

Jesse Hartmann, Vice President

ATTEST:

_____

David L. Raby, Secretary/Treasurer

SCHEDULE A

District 060 - Lower MN River Watershed

The following table was presented for the Managers' consideration with regard to the proposed amounts to be levied in each separate county, based upon the net tax capacities available:

Preliminary Certification of Apportioned Levies

Payable 2019

1)	General Fund (M.S. 103D.905, Subd.3)	$250,000.00
2)	Planning and Implementation Fund (M.S. 103B.241)	$475,000.00
3)	Payable 2017 Property Tax Levy	$725,000.00

County	(4 Payable 2018 Taxable Net Tax Capacity	(5) Net Tax Capacity Percent Distribution	(6) Apportioned Payable 2017 Levy Column(4) x (5)
Carver	$6,240,151	6.6817%	$48,442.33
Dakota	$9,790,297	10.4830%	$76,001.75
Hennepin	$35,626,906	38.1476%	$276,570.10
Scott	$41,734,806	44.6877%	$323,985.83
TOTAL	$93,392,160	100.00%	$725,000.00

Manager _____ introduced the following resolution and moved its adoption:

RESOLUTION 18-09

LOWER MINNESOTA RIVER WATERSHED DISTRICT

PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR HENNEPIN COUNTY

FOR TAXES PAYABLE 2019

AND ADOPTING 2019 BUDGET

WHEREAS, the Board of Managers of the Lower Minnesota River Watershed District ("LMRWD") has proposed a total budget of One Million Two Hundred Sixty Seven Thousand Two Hundred Fifty Five Dollars ($1,267,255) for the fiscal year commencing January 1, 2019; and

WHEREAS, the proposed budget requires Seven Hundred Twenty Five Thousand Dollars ($725,000) to be raised from an ad valorem tax levy on taxable property in the LMRWD, apportioned according to the attached Schedule A, for the purpose of paying administrative expenses (Minnesota Statutes § 103D.905 Subd. 3) of Two Hundred Fifty Thousand Dollars ($250,000) and providing for a planning and implementation fund (Minnesota Statutes § 103B.241) of Four Hundred Seventy Five Thousand Dollars ($475,000).

NOW, THEREFORE, BE IT RESOLVED, that the Secretary, in accordance with Minnesota Statutes, shall certify to the Auditors of Hennepin County, the following sum to be raised by levy on all taxable property in the Lower Minnesota River Watershed District payable in the year 2019 for the purposes noted above: Two Hundred Seventy Six Thousand Five Hundred Seventy and 10/100 Dollars ($276,570.10), as provided in Minnesota Statutes, Sections 103D.911 and 103D.915;

BE IT FURTHER RESOLVED by the Board of Managers of the LMRWD that the 2019 Preliminary Budget as proposed is hereby approved and adopted.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 15th day of August, 2018.

_____

Jesse Hartmann, Vice President

ATTEST:

_____

David L. Raby, Secretary/Treasurer

SCHEDULE A

District 060 - Lower MN River Watershed

The following table was presented for the Managers' consideration with regard to the proposed amounts to be levied in each separate county, based upon the net tax capacities available:

Preliminary Certification of Apportioned Levies

Payable 2019

1)	General Fund (M.S. 103D.905, Subd.3)	$250,000.00
2)	Planning and Implementation Fund (M.S. 103B.241)	$475,000.00
3)	Payable 2017 Property Tax Levy	$725,000.00

County	(4 Payable 2018 Taxable Net Tax Capacity	(5) Net Tax Capacity Percent Distribution	(6) Apportioned Payable 2017 Levy Column(4) x (5)
Carver	$6,240,151	6.6817%	$48,442.33
Dakota	$9,790,297	10.4830%	$76,001.75
Hennepin	$35,626,906	38.1476%	$276,570.10
Scott	$41,734,806	44.6877%	$323,985.83
TOTAL	$93,392,160	100.00%	$725,000.00

Manager _____ introduced the following resolution and moved its adoption:

RESOLUTION 18-10

LOWER MINNESOTA RIVER WATERSHED DISTRICT

PRELIMINARY CERTIFICATION OF PROPERTY TAX LEVIES FOR SCOTT COUNTY

FOR TAXES PAYABLE 2019

AND ADOPTING 2019 BUDGET

WHEREAS, the Board of Managers of the Lower Minnesota River Watershed District ("LMRWD") has proposed a total budget of One Million Two Hundred Sixty Seven Thousand Two Hundred Fifty Five Dollars ($1,267,255) for the fiscal year commencing January 1, 2019; and

WHEREAS, the proposed budget requires Seven Hundred Twenty Five Thousand Dollars ($725,000) to be raised from an ad valorem tax levy on taxable property in the LMRWD, apportioned according to the attached Schedule A, for the purpose of paying administrative expenses (Minnesota Statutes § 103D.905 Subd. 3) of Two Hundred Fifty Thousand Dollars ($250,000) and providing for a planning and implementation fund (Minnesota Statutes § 103B.241) of Four Hundred Seventy Five Thousand Dollars ($475,000).

NOW, THEREFORE, BE IT RESOLVED, that the Secretary, in accordance with Minnesota Statutes, shall certify to the Auditors of Scott County, the following sum to be raised by levy on all taxable property in the Lower Minnesota River Watershed District payable in the year 2019 for the purposes noted above: Three Hundred Twenty Three Thousand Nine Hundred Eighty Five and 83/100 Dollars ($323,985.83), as provided in Minnesota Statutes, Sections 103D.911 and 103D.915;

BE IT FURTHER RESOLVED by the Board of Managers of the LMRWD that the 2019 Preliminary Budget as proposed is hereby approved and adopted.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 15th day of August, 2018.

_____

Jesse Hartmann, Vice President

ATTEST:

_____

David L. Raby, Secretary/Treasurer

SCHEDULE A

District 060 - Lower MN River Watershed

The following table was presented for the Managers' consideration with regard to the proposed amounts to be levied in each separate county, based upon the net tax capacities available:

Preliminary Certification of Apportioned Levies

Payable 2019

1)	General Fund (M.S. 103D.905, Subd.3)	$250,000.00
2)	Planning and Implementation Fund (M.S. 103B.241)	$475,000.00
3)	Payable 2017 Property Tax Levy	$725,000.00

County	(4 Payable 2018 Taxable Net Tax Capacity	(5) Net Tax Capacity Percent Distribution	(6) Apportioned Payable 2017 Levy Column(4) x (5)
Carver	$6,240,151	6.6817%	$48,442.33
Dakota	$9,790,297	10.4830%	$76,001.75
Hennepin	$35,626,906	38.1476%	$276,570.10
Scott	$41,734,806	44.6877%	$323,985.83
TOTAL	$93,392,160	100.00%	$725,000.00

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 6. A. - Recognition of Contributions by Yvonne Shirk to LMRWD

Prepared By
Linda Loomis, Administrator

Summary
In recognition of Yvonne Shirk's service to the District, Resolution 18-06 is presented for adoption by the Board. In addition, a plaque has been ordered to present the former President Shirk. President Shirk was first appointed to the Board and sworn in July, 2011 representing Dakota County. She served as Vice President of the District from 2014 to 2015 and as President from 2015 until her resignation from the Board in June 2018.

During that time Yvonne provided dedicated leadership to the Board and added a common sense approach to managing the resources of the District. Once adopted and signed the resolution will be sent to Yvonne with the plaque. Managers will be sent a proof of the plaque once it has been received.

Attachments
RESOLUTION 18-06 - A RESOLUTION OF APPRECIATION FOR SERVICE AND CONTRIBUTION OF YVONNE SHIRK TO THE LOWER MINNESOTA RIVER WATERSHED DISTRICT

Recommended Action
Motion to adopt Resolution 18-06

_____introduced the following resolution and moved its adoption,

RESOLUTION 18-06

LOWER MINNESOTA RIVER WATERSHED DISTRICT
BOARD OF MANAGERS

A RESOLUTION OF APPRECIATION FOR SERVICE AND CONTRIBUTION OF YVONNE SHIRK TO THE LOWER MINNESOTA RIVER WATERSHED DISTRICT

WHEREAS, the Lower Minnesota River Watershed District (the "District") is a special purpose unit of government established in accordance with Minnesota State Statute 103D; and

WHEREAS, under said Statute, the District is charged with the responsibility for the management of storm water, to protect persons and property from flooding, to protect and preserve the water quality of lakes, streams, rivers and wetlands within the boundaries of the District and downstream receiving waters. In addition to the duties, for which the District was created, of Local Sponsor for the US Army Corps of Engineers maintenance of the Nine Foot Navigation Channel; and

WHEREAS, Yvonne Shirk has served as a Manager, representing Dakota County, on the Board of Managers for the District from 2011 to the present, as Vice President from 2014 to 2015 and as President of the Board from 2015 to her resignation from the Board in 2018; and

WHEREAS, Yvonne has freely and generously given her time and knowledge, expertise and talent, without compensation, to serve the public and protect the environment; and

WHEREAS, Yvonne has provided her professional expertise, leadership and guidance to the District with vision, integrity, an open mind and a conscientious dedication to the mission of the District; and

WHEREAS, Yvonne provided leadership to the District, during the development of the District's Dredge Management Plan and operations; the 2012 Governance Study; the 2013 Strategic Resource Evaluation, the 2015 Plan Amendment; the Plan clarification in 2016 and the most recent Plan Amendment/Update and development of many other activities and projects, as well as an overarching concern for the Minnesota River; and

WHEREAS, Yvonne has always treated the public, staff and fellow commissioners with respect and courtesy, and presided over meetings of the District with fairness and common sense.

NOW THEREFORE BE IT RESOLVED that the Lower Minnesota River Watershed District Board of Managers hereby expresses its sincere and grateful appreciation to Yvonne Shirk for her many years of distinguished service to the Lower Minnesota River Watershed District and the public.

Adopted by the Board of Managers of the Lower Minnesota River Watershed District this 15th day of August, 2018.

_____
Jesse Hartmann, President

Attested:

_____
David Raby, Secretary

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 6. B. - 2017 Annual Report

Prepared By
Linda Loomis, Administrator

Summary
In accordance with MN Statute 103D.351 and MN Rule 8410.0150, the LMRWD is required to prepare an annual report of its activities. The LMRWD 2017 Annual report is attached and once approved by the Board will be submitted to BWSR as required by statute.

Attachments
LMRWD 2017 Annual Report

Recommended Action
Motion to approve Annual Report and authorize submission to BWSR.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. A. - 10831 Quebec Avenue South, Bloomington - Cost Share Application

Prepared By
Linda Loomis, Administrator

Summary
This application was submitted to the LMRWD in May 2018. Managers tabled the application and invited Mr. Larson, the applicant, to a Board meeting to speak to them about the application. Mr. Larson appeared before the Board at the July meeting. After the meeting Mr. Larson was given contact information at the city of Bloomington where he might go to get technical assistance for his project. I also provided him with contact information for Metro Blooms and offered him a suggestion of what he might try to better achieve water quality treatment (in addition to the rain barrels) and also provide him with privacy in the back yard of his home.

Attachments
No attachments

Recommended Action
No action recommended

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. B. - 2018 Financial Audit

Prepared By
Linda Loomis, Administrator

Summary
At the July meeting Managers asked Administrator Loomis to find out what other watershed districts are paying for financial audits. I asked Riley Purgatory Bluff Creek WD, Nine Mile Creek WD and Prior Lake Spring Lake WD. Carver County WMO and Scott County WMO are both considered departments of the County and audits are included as part of the county audits. I also asked Washington Ramsey WD, Brown's Creek WD and Vadnais Area Lakes WMO. Bassett Creek WMO is done as part of the city of Golden Valley's audit, as the city provides financial services to the WMO, so their cost is not representative of the cost that other organization might expect to pay.

I received a response from the Prior Lake/Spring Lake Watershed District. They use Abdo Eick and Meyers for about $9,600. And Riley/Purgatory/Bluff Creek WD uses Redpath. They pay a similar amount to what we pay $13,000. Prior Lake/Spring Lake did look get a proposal that was about $3,000 less than Abdo Eick and Meyers, but they decided the firm that provided that quote wasn't sure they could manage the Prior Lake Outlet Channel with all their other accounts, so they are staying with Adbo Eick and Meyers.

If I get information from others before the meeting I will share that with the Board at the meeting.

Attachments
No attachments

Recommended Action
Provide direction to staff regarding 2018 financial audit

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. C. - Engineering Services Update

Prepared By
Linda Loomis, Administrator

Summary
An agreement has been prepared, but there was not time to get it reviewed by all the parties in order to include it in this packet. Staff plans to have the agreement available for the Board at the meeting.

Attachments
No attachments

Recommended Action
Motion to approve engineering services agreement

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. D. Dredge Management

Prepared By
Linda Loomis, Administrator

Summary

i. **Funding for dredge material management**

Staff met with the BWSR Board Conservationist for the District. BWSR did not have any additional comments on the proposed dredging activities. They only asked to be notified if there were changes to the work plan that was submitted to them in August 2017.

Staff received comments from the DNR and has responded to those comments. Staff anticipates that everything will be in order to hold the public hearing at the October Board meeting. The Board will be asked to adopt a resolution at the September Board meeting calling for the public hearing.

I have attached a number of documents for the Board to review to refresh your memories about this project. The first is a memo from Attorney John Kolb detailing the process for the District to make dredge management a permanent capital project of the District. The second document is the notice the District provided to BWSR and the DNR. The third document is the response the District received from the DNR and lastly is the District's response to DNR's comments.

ii. **Vernon Avenue Dredge Material Management Site**

A task order was presented to the Board at the July meeting. The Board decided that the task order should be done under the new Engineering Services Agreement. A new task has been prepared and is attached for Board review and approval.

iii. **Private Dredge Material Placement**

I received a call from Lisa Brickey at Mosaic. The recent high water levels left a lot of sediment on a boat launch at Mosaic. They called to see if they could remove the sediment and what they should do with it. I checked with Jennie Skancke at the DNR and was told that Mosaic can remove the material and place it on the bank of the slip. This work would be covered under the permit Mosaic has to dredge the barge slip.

Attachments
Dredge Project Proceeding Memorandum
Dredge Material Site Update for Agency Review
DNR comments
LMRWD response to DNR comments
Task Order for Dredge Site Studies

Recommended Action
Motion to authorize execution of Task Order

RINKE NOONAN
attorneys at law

1015 W. St. Germain St., Ste. 300, P.O. Box 1497
St. Cloud, Minnesota 56302-1497
Telephone 320-251-6700, Fax 320-656-3500

Memorandum

To: **Lower Minnesota River Watershed District Board of Managers**
From: **Rinke Noonan, John C. Kolb**
Re: **Dredge Project Continuation: Hearing and Establishment**
Our File: **25226-0007**
Date: **February 14, 2017**

You asked that I provide an explanation of next steps in the dredge project proceedings. The District is proceeding under statutes section 103D.605 for establishment of a project modification to the existing dredge project. The modification includes improvements to the current management facility and changes in the basis of cost allocation for the project.

The Board has completed several preliminary steps in the project proceedings. Remaining steps are:

1. Submission of the project plan to BWSR and DNR for review and comment; and
2. Notice and conduct of a final hearing.

Based on current posture of the proceedings, I recommend authorizing submission of the dredge management plan, as updated, to BWSR and DNR with a request for review under section 103D.605. Upon completion of the agency review, the Board may proceed to notice and hold a final hearing.

Discussion:

In September 2015, the Board adopted a resolution initiating proceedings under statutes section 103D.605 to modify the previously established dredge project. The Board specified that it would follow the processes set forth in sections 103D.605 and 103D.715 – .731 as appropriate. Part of those processes include a determination of project benefits by the Board.[1]

[1] The Board also directed, under statutes section 103B.251, that the dredge project be included as a capital improvement project of the District.

To assist it in its task of determining benefits, the Board engaged Clay Dodd to analyze the project and affected properties and to provide a report on special benefits. At its regular meeting in December, Mr. Dodd presented his report to the Board. The Board invited owners of property identified in Mr. Dodd's report to the meeting. The Board must now decide whether to proceed with the actions initiated by the resolution. Specifically: **does the Board want to proceed to establish a modification to the project that will enable allocation of some or all of the project costs to properties benefitted by the project or does the Board want to dismiss the proceedings and continue to fund the project through ad valorem taxes or other available funds?**

Proceedings for Establishment:

In its initiating resolution, the Board directed that the proceedings follow statutes sections 103D.605 and 103D.715 – .731 as appropriate. Sections 103D.715 – .731 deal with the benefit determination which is being assisted by Mr. Dodd. Section 103D.605 provides the procedural process for initiation and establishment.

Watershed Districts must follow section 103D.605 if (1) a project is to be constructed within the watershed district under an agreement between the managers and the state or federal government and the cost of the project is to be paid for in whole or in part by the state or federal government, but the rights-of-way and the cost of the project are assumed by the watershed district; or (2) the managers are undertaking all or a portion of the basic water management project as identified in the watershed management plan.

Here, the dredge project is a basic water management project identified in the watershed management plan. Additionally, the project is implemented under an agreement with the federal government wherein the federal government conducts the dredging, but the watershed district is obligated to acquire disposal sites and rights of way and pay for the management and disposal of the dredge materials. I have concluded, therefore, that section 103D.605 is an appropriate mechanism for establishment.

Section 103D.605 requires that a copy of the project plan, in this case the District's dredge material management plan, must be transmitted to BWSR and DNR for review and comment. BWSR and DNR must review the project plan, prepare reports on the project and transmit the reports to the managers.

After receiving the BWSR and DNR reports, the managers must set a time and location for a hearing on the proposed project. The project hearing notice must provide the time, date and location of the hearing, a description of the project, an estimate of project costs (including long-term operations and maintenance), and a description of the method by which the project costs

will be paid (to include assessments, ad valorem taxes, and any costs allocated to an affected municipality or the state).[2]

The District must publish notice of the hearing in a legal newspaper, published in each county where property is to be improved by the proposed project. The last publication must occur between 30 days and ten days before the project hearing. Additionally, the District must mail notice, at least ten days before the project hearing, to BWSR, DNR, municipalities entirely or partly within the project area and any owner of property subject to benefits assessment.[3]

The hearing is an evidentiary proceeding. At the hearing, the managers must hear all parties interested in the proposed project. After the hearing, if the managers find that the project will be conducive to public health, promote the general welfare, and is in compliance with the watershed management plan and the provisions of chapter 103D, the Board must, with appropriate findings, order establishment of the project.

Appeals:

Any party alone or jointly may appeal an order of the managers made in a proceeding relating to a project that determines: benefits; damages; the allowance of fees or expenses; a matter in the proceeding affecting a substantial right; or the establishment or refusal to establish a project in whole or in part. The appeal may be taken to the District Court or BWSR. An appeal of benefits is entitled to a jury trial and any amount determined on appeal will replace the amount from which the appeal was taken.[4]

If an appeal is taken from an order establishing a project, a trial of an appeal of benefits or damages from the proceedings must be stayed until the establishment appeal is decided. If the order authorizing the project is affirmed, a trial of an appeal of benefits or damages may commence.

The appeal must be filed within 30 days of the date of the final order.

Recommendation:

To continue in the proceedings, the Board should authorize its technical consultant to submit the dredge management plan, as updated, to BWSR and DNR with a request for review under section 103D.605.

Upon completion of the agency review, the Board may proceed to notice and hold a final hearing.

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[2] It is possible that the Board could combine revenue authority in a single project. For example, if the Board determines that the project creates both general benefit, as it did in 1984, and special benefit, as it did in 1962, it may allocate project costs between an ad valorem component and benefit assessment component. I also note that recent bonding from the legislature will defray some expenses related to the project.

[3] Failure to give mailed notice or defects in the notice do not invalidate the proceedings.

[4] It is possible therefore that an appellant's benefits could increase or damages decrease on appeal.

Young Environmental Consulting Group, LLC

Technical Memorandum

Transmitted electronically

To: Steve Christopher, BWSR Board Conservationist
Jennie Skancke, DNR Area Hydrologist

From: Lisa Buchli, PE
Della Schall Young, CPESC, PMP

CC: Linda Loomis, LMRWD Administrator
John Kolb, Rinke Noonan
Jeff Thuma, Burns & McDonnell

Date: May 18, 2018

Re: Cargill East River (MN–14.2–RMP) Dredge Material Site Project Update for Agency Review

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Per Minnesota Statute 103D.605, subdivision 2, the Lower Minnesota River Watershed District (LMRWD or "District") is distributing the updated dredge management plan ("Plan") for your review and consideration. The proposed modification includes improvements to the current Cargill East River (MN–14.2–RMP) dredge material site and changes in the basis of the cost allocation. The following is a summary of the proposed changes to the Cargill East River (MN–14.2–RMP) dredge material site or "Project."

Current Project Improvements

The District serves as the local sponsor and is responsible for providing a placement site for the U.S. Army Corps of Engineers (USACE) to place dredge material from the Minnesota River to maintain a nine-foot-deep river channel. The District owns and operates in the Project, in the City of Savage where USACE temporarily stores dredge material from the river. In 2014, the District entered into agreements with Cargill, Inc.; CHS, Inc.; and Riverland Ag Corp. to provide an area within the Project for temporary storage of dredge material from their private slips located on the Minnesota River.

To maintain adequate segregation of the sandy USACE material and the fine-grained private dredge material, the Project now being used to store the private dredge material will be reconfigured from one-cell to two-celled. One water control structure will be

installed in each cell to optimize the dewatering and consolidation potential of the private dredge material. The modifications would result in greater storage capacity, more than 50,000 cubic yards, for the private dredge material and over 75,000 cubic yards of storage capacity for the USACE material.

The District developed the capital cost for modifications to the Project and for continuous operation and maintenance (O&M); see the "Estimate of Probable Cost, Cargill East River (MN–14.2–RMP) Dredge Material Site" by Burns & McDonnell, dated February 15, 2017. Capital improvement costs were separated into costs associated with only the private dredge material area and costs associated with both the private and USACE dredge material areas, the latter of which would be equally split between the private land owners and the District. The District will incur all O&M costs. The District is also in the process of developing a hydraulic model for the Project to address municipal floodplain requirements.

Changes to the Basis of Project Cost Allocation

Modifications to the Project also include changes to the basis of cost allocation for the Project. As part of the processes set forth in Minnesota Statutes 103D.605 and 103D.715-731, a determination of Project benefits must be made by the District's Board of Managers (Board). As required, the District completed the determination of Project benefits and documented in the enclosed *Special Benefits Report*, dated October 5, 2017. The Board will use the report to determine cost allocations to properties benefited by the Project or to continue to fund it through ad valorem taxes or other available funding streams.

We request your agency's response to these project modifications within the next 30 days. Questions and requests for additional information should be directed to Linda Loomis at 763-545-4659 or naiadconsulting@gmail.com or to Della Young at 651-249-6974 or della@youngecg.com.

Enclosures: Special Benefits Study Pertaining to the Maintenance of the 9-foot River Channel in the Minnesota River and Dredge Site Cost Analysis Memo

DEPARTMENT OF NATURAL RESOURCES

June 14, 2018

Linda Loomis
Administrator, Lower Minnesota River Watershed District
6677 Olson Memorial Highway
Golden Valley, MN 55427

Re: Engineer's Report: Lower Minnesota River Watershed District - Dredge Management Project Update

Dear Linda Loomis,

On behalf of the Director of the Division of Ecological and Water Resources of the Minnesota Department of Natural Resources (DNR), I offer the following comments on the Engineer's Report for the above-cited project, in accordance with Minnesota Statutes section 103D.605, subdivision 2.

The dredge material management site is subject to the Channel Maintenance and Management Plan (CMMP) for the Navigation System on the Upper Mississippi, Minnesota, and St. Croix Rivers. There does not appear to be significant changes in the project that would be inconsistent with the CMMP.

We understand that the Lower Minnesota River Watershed District (District) evaluated the following changes to the current Dredge Management Project:

- Reconfigure the dredge placement site from one cell to two cells;
- Add two water control structures (one per cell);
- Add a culvert along Vernon Avenue;
- Vernon Avenue upgrade;
- Change the access site for private slip dredge material unloading.

In relation to the project site, as stated within the project report, the site lies within the Minnesota River floodway. The update memo does not include a detailed stage increase analysis under the floodplain section. The DNR expects that the no-rise modeling and analysis will be provided as part of the CUP amendment process and that the analysis will adequately demonstrate how the District will meet FEMA and the City of Savage's requirements related to floodway fill. The DNR will review the amendment request when the City routes it for review and comment. The District has stated a request will be made to remove the CUP condition to remove fill during flood events. We expect there will be an analysis certifying that any dredge fill left in place will not cause a rise, as required by the City of Savage and FEMA regulations.

In relation to state-listed Threatened and Endangered species, while the DNR doesn't have any concerns regarding the proposed modifications, it is unclear whether potential impacts to state-listed species were considered in the original plan. To ensure compliance with the Minnesota Endangered Species Statute and Rules, the DNR recommends that all watershed projects involving new disturbance include an assessment of potential impacts to state-listed species. Please visit the NHIS webpage for information on how to request a Natural Heritage Review or enter into a license agreement with the DNR for the use of the Rare Features Data.

Thank you for your consideration of these comments.

Sincerely,

Dan Lais
Regional Manager

CC: MN DNR - Bill Huber
MN DNR - Jennie Skancke
City of Savage – Jesse Carlson
BWSR – Ben Carlson

Website Address:
The website address for Minnesota DNR's Natural Heritage Information System webpage is:
https://www.dnr.state.mn.us/nhnrp/nhis.html.

Linda Loomis, Administrator
Lower Minnesota River Watershed District
112 E. 5th Street, #102
Chaska, Minnesota 55318

August 10, 2018

Dan Lais, Central Region Manager
Minnesota Department of Natural Resources
Division of Ecological and Water Resources
1200 Warner Road
St. Paul, Minnesota 55106

Dear Mr. Lais:

Thank you for the comments provided to the Lower Minnesota River Watershed District (District) on the proposed dredge management project update. Below are responses to those comments.

City of Savage Conditional Use Permit

The District is in the process of developing the hydrology and hydraulic (H&H) model of the dredge site. The H&H model will be used to formulate site conditions that will not affect the 100-year flood stage within the Minnesota River floodplain. The expected completion of the H&H model and accompanying conditional use permit application packet is December 2018/January 2019.

Threatened and Endangered Species Survey

The District intends to complete a threatened and endangered species (T&E) survey. As the DNR has recommended, the District will assess the potential impact of the proposed dredge management project update on state-listed threatened and endangered species. The expected completion date of the T&E survey is October 2018.

Thank you again for your review and comments. Please contact me at (763)545-4659 or naiadconsulting@gmail.com if you have any questions or need additional information.

Sincerely,

Linda Loomis, Administrator
Lower Minnesota River Watershed District
LL/dsy

CC: LMRWD Managers Ben Carson, BWSR; Bill Huber, DNR; Jennie Skancke, DNR; Jesse Carlson, City of Savage; and Steve Christopher, BWSR

Memorandum

Young Environmental Consulting Group, LLC

Date: August 10, 2018 *(Email transmittal)*

To: Linda Loomis, Administrator

From: Della Schall Young, PMP, CPESC

Subject: Permitting, Design, and Construction Administration Task Order
Cargill East River (MN—14.2 RMP) Dredge Material Site

The Lower Minnesota River Watershed District (the "District") intends to implement the planned capital improvement project at the Cargill East River (MN—14.2 RMP) Dredge Material Site (the "Site") located on the Minnesota River in Savage, Minnesota. As part of this effort, environmental and water resources studies, permitting, and engineering design need to be completed. These tasks were identified in the Board of Water and Soil Resources (BWSR) approved work plan prepared by Burns & McDonnell Engineering Company, Inc. ("Burns & McDonnell") and Young Environmental Consulting Group, LLC ("Young Environmental") for the District. This Task Order identifies the items to be completed to support the design and construction administration services required for the proposed capital improvements at the Site.

Scope of Work

Task 1: Environmental Support, Analysis, and Permitting

Task 1.1: Hydrologic and Hydraulic (H&H) Modeling Assistance

The Site is in the Minnesota River floodway. To complete the proposed capital improvements to the Site, a conditional use permit associated with work in the floodplain is required. As confirmed by public works staff, the city of Savage, MN will require H & H modeling of the reconfigured site design to demonstrate that the proposed configuration of the dredge material on the Site will not raise the flood stage. Barr Engineering Company ("Barr") has been retained by the District to complete the H & H modeling, and the Young Environmental team will support the H&H modeling efforts. This support will include in-person and telephone meetings with Barr.

Task 1.2: Desktop Wetland Analysis

There is a wetland in the northwestern corner of the Site between Port Richards and Vernon Avenue. The plan is to avoid impacting the wetland. To do that, a desktop wetland analysis is required to clearly identify the limit of the wetland area the proposed capital improvements should avoid. The desktop wetland analysis will be completed by a professional wetland scientist and a Minnesota wetland delineator certified professional and submitted to Savage. If the desktop wetland analysis determines a field survey is required, additional costs may be incurred.

Deliverable: Desktop Wetland Analysis Report

Task 1.3: Threatened and Endangered Species Survey

During the study of the Site completed as part of the U.S. Army Corps of Engineers -sponsored Dredge Material Management Plan in March 2007, the United States Fish and Wildlife Service concurred with the findings that proposed operations at the Site would not adversely affect federally and state listed threatened and endangered (T & E) species. Given the ongoing listing and delisting of T & E species on a federal and state level, an updated T&E survey is required prior to implementing the reconfigured site design. An environmental specialist will complete the T & E survey in accordance with relevant state and federal requirements.

Deliverable: Threatened and Endangered Species Report

Task 1.4: City of Savage Conditional Use Permitting

This task consists of completing the conditional use permit (CUP) application and package supporting materials, as needed. This also includes attending one staff meeting with the city of Savage's public works department and one Savage city council meeting and preparing for and participating in a meeting with the city of Savage to discuss the reconfigured site design and the H&H modeling results. The task also includes preparing a letter to Savage requesting an amended CUP such that the reconfigured site design and materials placed at the Site can remain in place during floods.

Deliverable: CUP Permit Application and Letter to the City of Savage

Task 2: Engineering Design

Task 2.1: Engineering Design and Subcontractor Management

Engineering design and permitting of the reconfigured site design need to be completed in accordance with Minnesota Pollution Control Agency requirements and must incorporate the information determined from the H&H modeling (to be completed by Barr), the predesign studies described in this Task Order, and input from LS Marine.

A contractor can then use the detailed design documents (i.e., plans and specifications) to construct the reconfigured site design. A licensed professional engineer registered in the state of Minnesota will complete the detailed engineering design.

The following are anticipated to be completed as part of this task:

- Develop a geotechnical investigation of the scope of work based on the reconfigured site design.
- Develop a topographical survey scope of work based on the reconfigured site design.
- Prepare a site-specific health and safety plan for field staff and subcontractors.

- Coordinate and provide oversight of geotechnical and topographical survey subcontractors.
- Finalize the revised conceptual site design and prepare a grading plan and details for the permanent berms, site access roads, dewatering structures, and river access points.
- Develop a design for permanent erosion protection to protect the berms from erosion during floods.
- Prepare construction drawings and specifications necessary to competitively bid and construct the project. The following drawings are anticipated to be prepared:
    - Cover sheet
    - General notes
    - Existing conditions
    - Two grading plan sheets
    - Cross-sections
    - Two detail sheets
    - Construction erosion control plan
    - Construction erosion control details
- Applicable construction specifications will be prepared as needed for the design. We anticipate preparing the following specifications:

Division 00: Contractual/Legal

000001	Cover Page
000107	Index and Certification Page
000110	Table of Contents
001116	Invitation to Bid
001153	Bidder's Qualification Statement
002113	Instructions to Bidders
004000	Bid Form
004313	Bid Bond
005000	Agreement Between Owner and Contractor
005100	Notice of Award
005500	Notice to Proceed
006101	Performance Bond
006111	Labor and Material Payment Bond
006119	Maintenance Bond
007200	General Conditions
007310	Labor-Related Regulations
009100	Addendum

Division 01: General Requirements

011100	Summary of Work

012300	Alternates
012500	Substitutions
013100	Project Coordination and Meetings
013200	Construction, Progress Schedules, and Reports
013300	Submittals
013529	Safety and Emergency Response
014000	Quality Requirements
014200	Definitions and Standards
015100	Temporary Facilities and Utilities
015700	Temporary Barriers and Controls
016000	Equipment and Materials
017123	Construction Layout and Surveying
017500	Manufacturer's Field Services
017800	Contract Closeout
017836	Warranties

Division 31 – Earthwork

312000	Site Preparation and Earthwork
312300	Excavation and Backfill
312313	Subgrade Preparation
312333	Trenching and Backfilling for Utilities

Division 32 – Exterior Improvements

329200	Seeding

- Burns & McDonnell will identify test methods, performance specifications, and as-built documentation required of the construction contractor and provide a list of required contractor submittals within construction drawings and specifications.
- Drawings will be provided for the District's review at the following completion stages:
    - Conceptual site design
    - 60% design completion stage with an order of magnitude cost estimate
    - 100% design complete issued for bid drawings, specifications, and final cost estimate

Deliverable: Drawings, Bid Documents, and Specifications

Task 2.2: Geotechnical Evaluation

A geotechnical evaluation of the Site is needed to aid in the detailed engineering design of the reconfigured Site. The geotechnical evaluation will assess the suitability of the onsite material for use in construction and will evaluate the stability of the berms during various conditions (e.g., during a flood). Burns & McDonnell will subcontract with a geotechnical firm to complete the geotechnical evaluation, which will be completed by a licensed professional engineer registered in the state of Minnesota.

Geotechnical borings will be gathered at the Site with a drill rig, and soil samples will be collected for laboratory analysis to determine engineering properties of the soil. The number of borings and soil samples will be determined in consultation with the geotechnical engineering firm performing the work. Using the site-specific data, slope stability analyses will be completed with slope stability modeling computer software.

For this Task Order, an allowance of up to $25,000 is included to complete the geotechnical evaluation, which matches the estimated cost presented in the Work Plan approved by BWSR. The actual costs to complete this task will be discussed with the District once proposals are obtained from subcontractors.

Deliverable: Geotechnical Report

Task 2.3: Topographic Survey

A topographic survey of the Site is needed to aid in the detailed engineering design of the reconfigured Site. Burns & McDonnell will subcontract with a licensed professional surveyor registered in the state of Minnesota to complete the survey, which will include the collection of elevation data as required and will define surface irregularities, break lines, void areas, and boundaries. The survey will also locate and determine elevations for objects like property corner monuments, ditches, culverts, utilities, etc.

For this Task Order, an allowance of up to $12,000 is included to complete the topographic survey, which matches the estimated cost presented in the Work Plan approved by BWSR. The actual costs to complete this task will be discussed with the District once proposals are obtained from subcontractors.

Deliverable: Topographic Survey in AutoCAD Format or Equivalent.

Task 2.4: Preconstruction Services

Preconstruction services including assistance with competitive bidding process. These services include the following: participating in an on-site pre-bid meeting, assisting with bidders' questions, issuing addenda during bidding phase, and reviewing bids for conformance with bid document requirements.

Deliverable: Addenda (if Required) and Project Schedule

Task 3: Construction Administration

Assistance during the construction phase of the proposed capital improvements will be provided to the District. These services will include:

- Assist with review of requests for information, submittals, proposal requests, and change orders during construction.

- Provide on-site construction quality assurance (CQA) services during critical phases of construction. We assume the construction of the reconfigured site design will occur over a period of up to eight consecutive weeks and anticipate a field engineer providing on-site CQA services up to eight hours per week.
- Attend a substantial completion punch list site visit and final punch list site visit.
- Prepare construction as-built record drawings.
- Prepare document report documenting as-built conditions.

Deliverable: As-Built Construction Record-Drawing and Documentation Report

Cost Estimate

Task Description	Estimate
Task 1: Environmental Support, Analysis and Permitting	-
Task 1.1: Hydrologic and Hydraulic Modeling Assistance	$4,000
Task 1.2: Desktop Wetland Analysis	$4,000
Task 1.3: Threatened and Endangered Species Survey	$12,000
Task 1.4: City of Savage Conditional Use Permitting	$8,000
Task 2: Engineering Design	-
Task 2.1: Engineering Design and Subcontractor Management	$90,000
Task 2.2: Geotechnical Evaluation	$25,000
Task 2.3: Topographic Survey	$12,000
Task 2.4: Preconstruction Services	$12,000
Task 3: Construction Administration	$35, 000
Total:	**$202,000**

Assumptions

- The H&H modeling results will be approved by the city of Savage, which will issue an amended CUP for the Site by the date shown on the attached schedule.
- The design and operational requirements (if any) for the owner and/or operator of the high voltage transmission lines traversing the Site are minimal. We will engage with the owner and/or operator of the transmission lines on behalf of the District prior to completing the scope of work described here and we have allocated up to eight hours for this work.

- The construction of the Site will occur in 2019 over a period of up to eight consecutive weeks. If additional time, delays in the schedule, phasing of the construction, etc., are required to complete (including but not limited to) the predesign studies, engineering design, permitting, and/or construction project, additional time and costs may be incurred.
- The Site will be accessible, and the geotechnical investigations described herein can be conducted with a truck-mounted direct-push rig within three ten-hour days. If inclement conditions or geologic refusal delays or interrupts sequential completion of the work, additional costs may be incurred beyond those estimated.
- The topographical survey will be completed when the Site is relatively snow free and accessible.
- The T&E species survey will be completed during summer and fall of 2018.
- LS Marine will provide design and operational input in a timely manner and assist with the scope described here.
- One round of the District's comments on the 60% and 100% design and construction documents will e provided by the District.

If you find this scope and cost estimate to be acceptable, please complete the signature block below and return the executed copy of this proposal to the Consultant as notice to proceed.

Accepted and Agreed to: Design, Permitting, and Construction Assistance Task Order for Cargill East River (MN—14.2 RMP) Dredge Material Site

CLIENT	CONSULTANT
Lower Minnesota River Watershed District	Young Environmental Consulting Group, LLC
By:_____	By: _____
Name: _____	Name: Della Nyondi Schall Young
Title: _____	Title: Owner and Principal

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. E. - Watershed Management Plan

Prepared By
Linda Loomis, Administrator

Summary
The District has received comments on the plan from the MN Department of Agriculture, MN DNR, and Metropolitan Council. Staff met with Steve Christopher, BWSR Board Conservationist, for the District. He notified us that the Central Region committee meeting will be held in September in St. Paul. (We previously were told they would meet in Worthington in August) Staff will attend to meeting to present the plan to the Committee. The Committee's recommendation will be made at the September 26th meeting of the BWSR board.

Attachments
No attachments

Recommended Action
No action recommended

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. F - Legislative Action

Prepared By
Linda Loomis, Administrator

Summary
I was able to attend the "Keeping Water on the Land" stakeholder meeting on August 8th. David Minge, Len Kremer and Lisa Frenette were also able to attend. They broke up the large group into five smaller groups to discuss the recommendations that had been presented to the group. They asked each group to prioritize the recommendations, and to add recommendations that may be missing and to identify groups or parties that were not at the meeting. The groups then came back together to report on the priorities of each group.

The agricultural community was definitely missing, as the meeting happened to conflict with FarmFest. The recommendations that were presented to the group are attached, along the agenda, and power point presentation. If you would like to listen the an audio file of the meeting that can be found by following these links (Audio Part I) (Audio Part II)

Lisa Frenette and I are meeting on Monday, August 13 to discuss the LMRWD 2019 Legislative Priorites. MAWD recently sent out information about resolutions packet ahead of the Annual Meeting. This year the resolution packet includes past resolutions adopted by MAWD so that everyone has a frame of reference to make new proposals. The MAWD Resolution meeting packet is attached.

Attachments
Recommendations "Keeping Water on the Land"
Agenda for "Keeping Water on the Land" meeting
"Keeping Water on the Land" Stakeholder meeting power point
MAWD 2018 Resolutions Packet

Recommended Action
For information only

Legislative Water Commission- 2019 Legislative Recommendations:
Keeping Water on the Land
LWC_2019_Recommemdations_KeepingWaterontheLand_Consolidated3.docs
DRAFT for Discussion
JRS

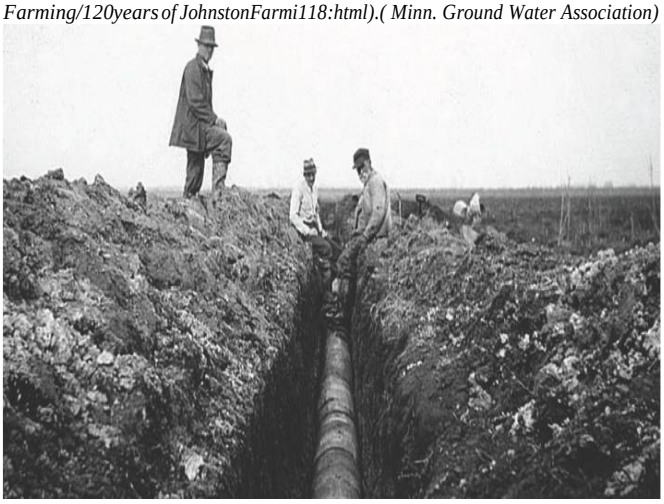
This draft document primarily is based on several sources that include the documents listed below. The draft document has not been fully attributed at this time.

- *Minnesota Ground Water Association, 2018; Drain Tiles and Groundwater Resources: Understanding the Relations, a White Paper, 35p*
- *Minnesota Board of Water and Soil Resources, Drainage Working Group: various papers and documents*
- *University of Minnesota, 2015; Fields to Streams: Managing Water in Rural Landscapes, University of Minnesota Water Resources Center and Extension, University of Minnesota, Extension, Water Resources Center, 99 p.*

Issue Summary and Draft Recommendations

Throughout our state's history, our residents have worked to change how water flows--building dams and dikes, straightening and dredging channels, armoring streambanks, digging ditches, installing subsurface tile, and constructing storm-sewer systems. The most extreme hydrologic alterations are the construction of impervious surfaces such as roads and buildings in our cities. However, the most widespread alteration of our hydrology has been the conversion of native prairie to farmland and the construction of the network of drainage ditches and subsurface tile that have been essential for intensive crop production and transportation infrastructure. Altered hydrology occurs in both urban and agricultural portions of the state and hydrologic alterations are locally more extreme in our cities and towns. However, the total area of affected lands is greater in agricultural portions of the state. In both areas, we need to increase efforts to retain water on the land in order to improve natural streamflow and to improve water quality and aquatic ecology. The question is this: What best management practices are appropriate in specific landscape settings within watersheds, and how can they be encouraged to improve our water resources?

Installation of clay tile on the Johnston form, circa 1938 (photo from http://www. nejohnston.org/wej/120 Years of Johnston Farming/120years of Johnston Farmi118:html).(Minn. Ground Water Association)



Background: In order to enable and enhance agricultural production, transportation, and economic development, the construction of drainage ditches began before Minnesota became a state. The ditches connected the natural stream network to previously unconnected depressions and wetlands and lowered the water table near ditches. Precipitation stored in depressions and soil around them was conveyed to streams and rivers. Many streams were straightened and enlarged to increase transport capacity. Each county has records of the public ditch systems, however no statewide record and map of historical ditch development has been compiled. The most active ditch construction occurred in the period from 1900 to 1929, with the decade of greatest drainage being 1910 to 1919. There was little new drainage installed during the dry years and economic depression of the 1930's. Drainage activity reemerged after World War II, driven by economic factors and periods of above-average precipitation.

The network of ditches for surface drainage has been augmented by installation of subsurface drainage tiles originally fabricated from clay or concrete. More recently, perforated plastic pipe is used instead of clay or concrete. Initially, tile lines were installed to drain individual wet areas that were not intersected by the ditches. With the development of the less expensive plastic drainage pipe and mechanized installation equipment, systems have expanded by patterned installation of pipe to systematically remove water from entire fields. Unlike the public ditch systems, there has not been a county-maintained record of subsurface field drainage because those systems are installed by individual landowners and permits are not needed. Subsurface field tile installation in southern Minnesota advanced throughout the 1900s and continues today. Systematic field drainage in the Red River valley was largely limited to surface drainage by ditches until about 2005, when subsurface system installation began at a rapid rate.

Benefits and Impacts of drainage: Historically, poorly drained soils were saturated or flooded after spring snowmelt, preventing timely farm operations such as tilling and planting. Installation of agricultural drainage, both surface ditches and sub-surface drainage accelerated transport of water from farm fields and resulted in greater crop yields. Agricultural drainage has provided other benefits such as preventing crop drown-out, aerating the soil for improved plant growth, limiting surface runoff and soil erosion, and allowing farmers better access to croplands. Without agricultural drainage on much of Minnesota's croplands, it would have been difficult to realize high-enough crop yields needed for farmers to have economically viable returns on their investments.

While drainage of Minnesota's croplands provides benefits, several environmental concerns are associated with agricultural drainage. These include wetland loss, habitat loss, and degradation of downstream water quality and reduced potential for groundwater recharge. Early agricultural drainage efforts (pre-20th century) led to the disappearance of much of Minnesota's natural wetlands. The increased focus on preventing or mitigating wetland loss over the last 50 years has helped curtail further losses, even as agricultural drainage proceeds. Prior to establishment of Minnesota statehood, wetlands accounted for more than 10 million acres in Minnesota, including prairie wetlands, peat-lands, and forest wetlands that comprised approximately 19 percent of the total land area. In 2018, only half of Minnesota's pre-settlement wetlands remain, mostly in parts of the State that have not experienced widespread drainage.

Other consequences of tile drainage:

Reductions of the time water is being stored in the soil: Only drainable water is removed by tile and ditches. The amount of plant available water (i.e., water held by soil particles against the pull of gravity) is not affected by artificial drainage systems.

Changing pathway of water over land: Some ditches and tile link streams to depressions (potholes) that were previously not connected.

Reducing overland flow: This occurs if water moves through soil and subsurface tile. Overflow still occurs on tiled land if surface soil structure is poor, blocking infiltration, or if the soil is saturated.

Decreasing evaporation-- by removing areas of standing water.

Increasing annual transpiration—when rooting depth and productivity are increased.

Increasing the total amount of water that reaches streams (annual yield). Models show that tiling increases the annual amount of water leaving the field.

Reducing, delaying and extending peak flows in streams occurs after precipitation or a snowmelt event (if water is moving through tile systems instead of overland). Water takes longer to travel through soil to a tile system than to move overland or through ditches. This means rainfall will reach streams later than if it only flowed overland. Soil continues to drain long after an event, so elevated stream flow lasts longer than if the rain all reached the stream overland.

Water-Quality Degradation: Water-quality monitoring has shown that drainage, in particular the practice of subsurface drainage, provides a direct flow path for moving water to ditches and streams. The negative consequences of drainage on surface water quality are well documented. These impacts include: excess nutrients, high sediment levels, flooding, property loss, and habitat loss. The last half century has seen substantial increases in the volumes of water delivered to streams. This has resulted in increased stream widths due to bank erosion, increased amounts of sediment transported in streams from field, and streambank, bluff and ravine erosion. Sources of sediment primarily are the result of greater flow of water to, and in, streams and rivers. To protect streams, the land, wildlife, and water quality, more water needs to be retained on the land and more water needs to be transpired by plants or infiltrated to groundwater, in cities and on farms by using new and existing land and water management practices.

Groundwater recharge: The connection of hydrological effects of agricultural subsurface drainage on groundwater recharge and aquifers is not well-established. Agricultural subsurface drainage intercepts infiltrating water below croplands and directly discharges the water to nearby surface waters. However, the size of the water balance shift comparing drained water, evaporated water, run off and drainage has not been well characterized.

Other effects of drainage on underlying aquifers also is not well known. A basic understanding of aquifers and their recharge is necessary to connect any hydrological effects from agricultural drainage to groundwater.

Urban Storm Water Retention: Water storage in urban areas can reduce peak flows in streams. Peak flows drive erosion. Storage is especially effective in small watersheds that have a high

sediment yield per amount of stream flow. Ravines and large gullies often supply large volumes of sediment eroded per unit of stream flow. Bypassing these areas or reducing and slowing the water flow can be effective in terms of cost per unit sediment reduced. However, the impact of stored waters in urban areas is not well established. We do not fully understand if groundwater recharge is increasing or decreasing. We also do not understand the impacts that storage is having on groundwater quality.

Strategies for reducing the Impacts of Drainage

Land and water management's practices have potential to protect and to improve water quality by modifying water use and flows. The practices are most effective when they are combined is sequences in a watershed. Individually or when combined, these practices have multiple impacts that include: improved soil structure and water holding capacity; reduced channel erosion; improved water quality and in-stream habitat; and reduced flooding. Ponds and wetland restoration for water storage in agricultural drainage systems improve drainage system efficiency. They dampen peak flow, and reduce the size requirement for ponds and ditches downstream. Practices that add perennial vegetation or that diversify channel structure also reduce channel erosion and create habitat.

These practices can be characterized according to where they are located in the various landscapes and according to the effects that they have on the hydrology of a watershed. In-field crop and soil management is appropriate in areas of intense agriculture. They improve watersheds by increasing transpiration, water infiltration, soil-water holding capacity as well as the resistance to soil erosion. Treatments in drained landscapes include increased drainage-management practices coupled with water treatment and retention/detention structures, constructed wetland, ponds, irrigation reservoirs, or modified ditch channels. Treatments that are applicable to sloping lands include grassed waterway, fitter strips buffer strips, terraces and water and sediment control basins. Riparian area modification and orientation, coupled with stream channel protection are most applicable near the outflow areas of watersheds. Because treatment methods need to be designed for local landscapes, climate and cropping systems need to be sited in ways that fit individual watersheds. The costs for the practices differ considerably with size, location and other factors.

Buffers: Buffers along streams, rivers and ditches have potential to slow water, sediment and nutrient delivery as well as increasing biological habitat. The 2017 Legislature directed the Board of Water and Soil Resources (BWSR) to coordinate the Drainage Work Group to evaluate and develop recommendations to help Minnesota drainage authorities accelerate the acquisition and establishment of buffer strips and alternative practices adjacent to public drainage ditches and associated compensation of landowners. The impetus for this action was the 2015 Buffer Law, which required landowners to establish buffer strips, or alternative practices, along all public drainage ditches. Recommendations were developed by a Project Advisory Committee organized under the auspices of the Drainage Work Group with BWSR staff support. The Advisory Committee evaluated impediments to drainage system acquisition and establishment of buffer strips and formulated actions for statutory, funding, and administrative policy changes, and outreach. The report was approved by the Drainage Work Group, accepted by the BWSR Board, and transmitted to the Legislative Policy Committees. Recommendations were categorized according to the type of action required and grouped according to the potential for the recommended actions to accelerate the acquisition and establishment of drainage system buffer strips, alternative practices and landowner compensation, or for their potential long-term benefits.

Soil Management involves enhancing the ability of the soil to infiltrate and store precipitation. Soil and crop management in agricultural fields affects infiltration rates and water holding capacity through effects on soil structure and soil organic matter.

Increasing Transpiration involves managing the amount and distribution of crop transpiration throughout the year. Transpiration is the largest user of precipitation water, and its timing relative to rainfall distribution has a great influence on how much surplus water will move off the land.

Managing Overland Flow involves the management of overland flow with crop residue, contour farming, and vegetated flow pathways like waterways and filter strips that slow, filter, and partially infiltrate surface runoff.

Subsurface Drainage management involves addressing subsurface drainage flow by sizing, depth, and spacing drainage pipe to control rates of drainage water leaving the field. Control structures can also be installed in the drainage system to allow temporary water storage for later crop use or timed release.

Water Storage: Increasing water storage, involves enhancing natural water storage in wetlands and other depressions, as well as storage with constructed wetlands, terraces, ponds, water and sediment control basins, down-sized culvert retention, weirs, and large detention basins.

Streambank Protection and Riparian Area Restoration: Establishing measures to protect channels and restore riparian areas.

Green cover crops and Agricultural Alternatives to corn and soybean rotations have great potential to slow the delivery of water, sediment and nutrients to our ground and surface water. The challenge is in finding crops that can compete with corn and soybeans economically.

Recommendations

There are many water-related concerns associated with water drainage and water retention. Rivers and streams integrate the effects of these management practices. Precipitation, vegetative cover, land management, geology, soils, and landscapes characteristics all influence our rivers. In combination with other watershed characteristics, the effects of changes we have made to natural drainage conditions magnify downstream in our rivers. These effects include excess nutrients, high sediment levels, flooding, property loss, and habitat loss. During the last half of the century, we have experienced increases in the volume of water in streams, the width of stream channels, and the amount of sediment being transported from fields, streambanks, bluffs, and ravines, primarily in southern Minnesota. The sources of sediment are primarily the result of greater stream and river flows. Increases in channel-shaping flows are related to changes in precipitation, decreases in transpiration, changes in agriculture, decreases in surface water storage due to drainage, reduced evaporation as well as changes in soil water holding capacity. To protect our rivers, farms, and wildlife, more water needs to be stored and slowly released using land and water-management practices. Better water management can reduce erosion and sediment deliver as well as reducing nitrate-nitrogen and phosphorus. This will, in turn, improve our streams and rivers. Changes in land and water management have potential to protect and to improve downstream conditions by modifying water quality and flow. As a state we need to determine how best to apply these management practices and how to incentivize them to maintain the productivity of our agricultural and urbanized lands.

Draft Recommendations: Some critical knowledge gaps exist in our understanding and management of water management at watershed scales:

1. ***The overall extent of drainage is needed. Direct estimates of the extent of subsurface drainage do not exist in Minnesota. However, several indirect methods could be utilized to estimate the extent of surface drainage statewide.***
2. ***Fund a cost/benefit/return on investment analysis of conservation drainage-management practices***
3. ***Create an organizational structure, similar to the Drainage Working Group, that encompasses all conservation- management practices***
4. ***Quantify the extent and distribution of open-tile inlet structures across the state and create incentives to replace them with alternatives***
5. ***Effects of drainage on underlying aquifers is unknown. A basic understanding of the impact on unconfined, and confined, aquifers is necessary to quantify the effects (quantity and quality) of agricultural drainage on shallow groundwater. This should include an evaluation of the effects on groundwater recharge.***
6. ***The effects of urban storm-water retention systems and rain gardens needs to be evaluated with respect to the quantity and quality of ground water***
7. ***An improved understanding of historical water-balance shifts from pre- to post-drainage periods is needed to understand long-term implications on groundwater recharge. More direct field-scale studies and modeling studies are needed to characterize water budgets for fields with subsurface drainage.***
8. ***Existing tools and systems need to be applied and used to identify the appropriate best management practices at landscape and watershed scales***
9. ***Utilize the one-watershed/one-plan process to locate and to implement best- management practices, within watersheds, at appropriate places and scales***
10. ***Evaluate the effects of drainage on by wetland systems***
11. ***Design programs to quantify potential problems of emerging contaminants in urban storm water retention basins***
12. ***Promote the role and importance of the relationship between healthy soil and healthy water. Establish programs to improve soil health, aimed at increasing agricultural productivity and water retention***
13. ***Support the recommendation of the Drainage Working Group***
14. ***Expand the responsibilities of the Drainage Working Group to include all drainage and water retention activities, rural and urban***
15. ***Quantity and map areas of deep aquifer recharge as areas that need to be protected from chemicals introduced as the result of drainage and water retention activities***
16. ***Encourage programs to maintain and upgrade rural ditches and culverts that reduce erosion and encourage fish passage***

Expanded Discussion: Draft Legislative Recommendations: Keeping Water on the Land

History of Drainage in Minnesota: Draining excess water from the land has been essential to the agricultural and urban development of our state. Throughout our state's history, people have changed how water flows by building dams and dikes, straightening and dredging channels, armoring streambanks, digging ditches, installing subsurface tile, and constructing complex storm-sewer systems. The most extreme hydrologic alterations have been the construction of impervious surfaces such as roads and buildings in our cities and towns. However, the most widespread alteration of Minnesota hydrology has been the conversion of native prairie to farmland and the construction of the network of drainage ditches and sub-surface tile for crop production. Drainage, in agricultural areas, and water retention in urbanized areas, both have potential to significantly affect our water resources.

Glaciers left Minnesota with a young landscape that continues to be reshaped by flowing water. Glaciation left wetlands and shallow lakes, and other areas of glacial lake sediment. Percolation of water is slow through most glacial materials. In order to enable and enhance agricultural production, transportation, and economic development, the construction of drainage ditches began even before Minnesota achieved statehood. A system of ditches connects the natural stream network to previously unconnected depressions and lowered the water table near ditches. Precipitation previously stored in the depressions, and in the soil around them, was more easily conveyed to streams and rivers. Many natural streams were straightened and enlarged to increase transport capacity.

It is estimated that at the time of statehood, in 1858, the state contained over 10 million acres of wetlands that comprised approximately 19 percent of the total land area (Palmer; 1915; King, 1980). These lands were viewed as breeding grounds for disease and impediments to transportation, agriculture, and development (Wilson, 2016). As codified, in 1887, the goals of Minnesota's wetland drainage policy were two-fold. First, they were to improve land productivity; secondly, they were to "remove causes of malaria". Subsequently, a series of legislative acts formed the basis of drainage laws. Costs of drainage improvements were assessed to benefited parties. The focus of drainage law was on enabling joint drainage systems across township and county boundaries. These acts formed the drainage code that currently is contained in statue, where the state counties and watershed boards act as drainage authorities.

Although multiple statutes formed the foundation for drainage law, little organized drainage took place until settlement advanced to the Red River Valley in the 1890's. The flat topography of the Red River Valley hindered drainage of fertile soils. In 1893, the Red River Drainage Commission was formed to initiate large-scale drainage systems and work began on state ditches fed by local and county ditches (Palmer, 1915; Hanson, 1987). From surface ditches, drainage evolved to incorporate tiling buy installing concrete or clay tile to remove water from isolated wet areas or by installing patterned tile to entire fields (Wilson, 2016). The tile lines fed water drained into surface ditches or natural watercourses. Activity peaked between 1900 and 1915 when it is estimated that approximately nine million acres were drained--fully 17 percent of Minnesota's total land surface (Hanson, 1987). Research on drainage at the University of Minnesota led to improvements in ditching and trenching, as ditching machines replaced hand tools.

Drainage decreased during the Dust Bowl. Between 1938 and 1945, an increase in commodity prices gave rise to an increased interest in drainage. Systems that deteriorated through disuse during the Dust Bowl were repaired and the use of drain tile became widespread. Changes in drainage law eliminated state and township drainage authorities, leaving only district courts and county boards with the ability to establish drainage systems (Laws of Minnesota, 1947). Expansion of drainage continued through the 1950's.

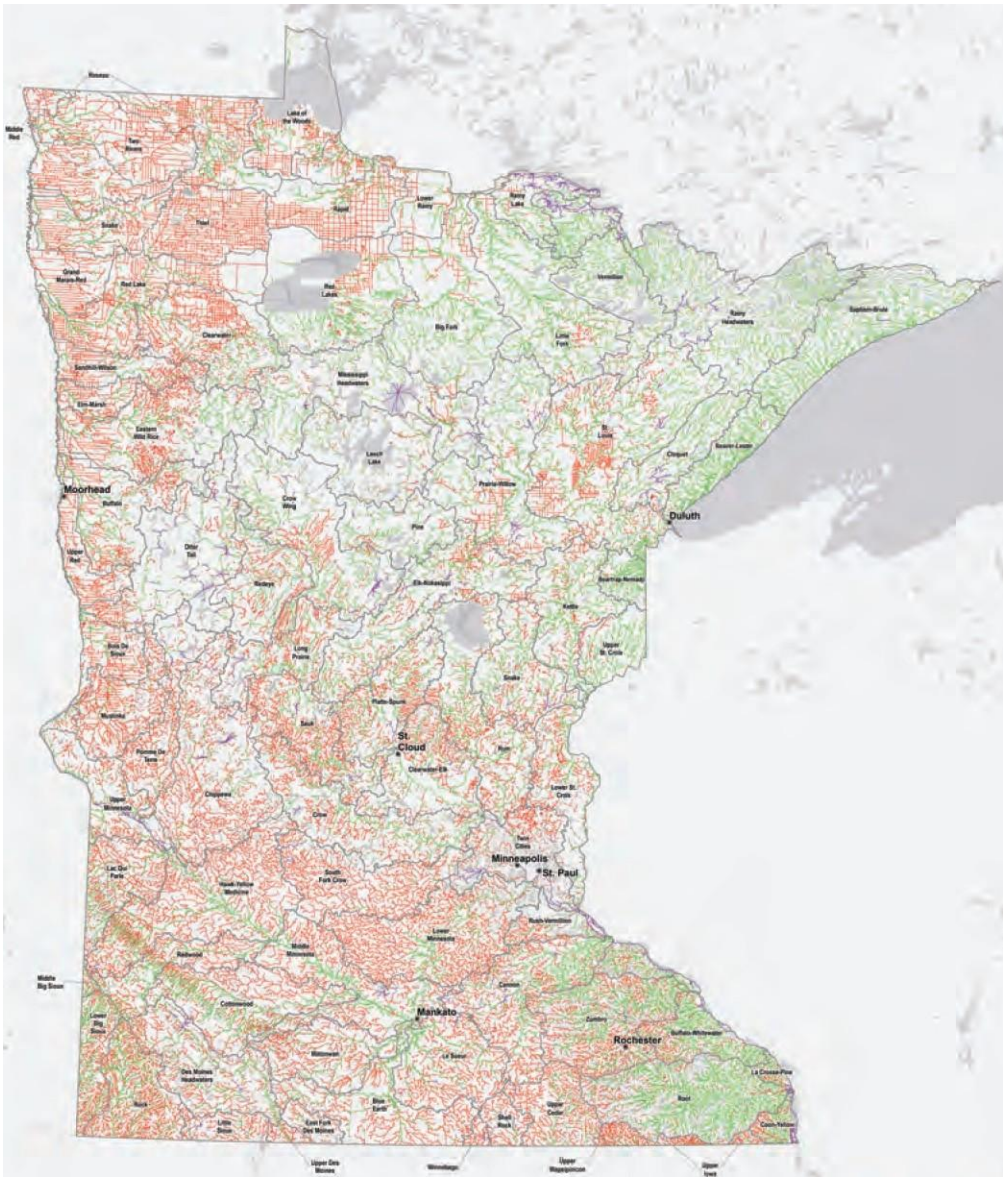
In 1955, drainage law was amended to give consideration to soil, water, forests, and habitat conservation (Laws of Minnesota, 1955a). Watershed districts created new drainage authorities (Laws of Minnesota, 1955b). In 1959, drainage authorities were granted the authority to require the spreading of spoil banks and the planning of a one-rod grass buffer strip, presumably to improve ditch bank stability (Laws of Minnesota, 1959). In the 1960s and early 1970s, conservationists began to question whether drainage was always in the public interest.

Later, a host of new state and federal environmental regulations were enacted, ranging from the federal Clean Water Act (1972) to the Minnesota Environmental Protection Act (1973). After that time, drainage was scrutinized more closely. Judicial authority to establish drainage systems was eliminated and potential ecological impacts were considered in the review of drainage projects or improvements (Laws of Minnesota, 1973). In 1976, the Legislature directed the Department of Natural Resources (DNR) Commissioner to inventory public water basins and watercourses and required the DNR and drainage authorities to examine environmental and conservation criteria before establishing drainage projects (Laws of Minnesota, 1976). Public wetlands were inventoried, and a state water bank program was established to pay landowners for not draining private wetlands.

The federal 1985 "Swamp buster Act" (Food Security Act of1985, 1985) removed eligibility for certain federal farm programs for farmers who converted wetlands to cropland. These requirements have continued in subsequent farm bills. In Minnesota, the Wetland Conservation Act (WCA) (Laws of Minnesota, 1991) regulated activities that result in the draining, filling, or excavating of wetlands, including those on agricultural land. Generally, WCA applies to non-public waters wetlands. Public water's wetlands protections are administered by the DNR.

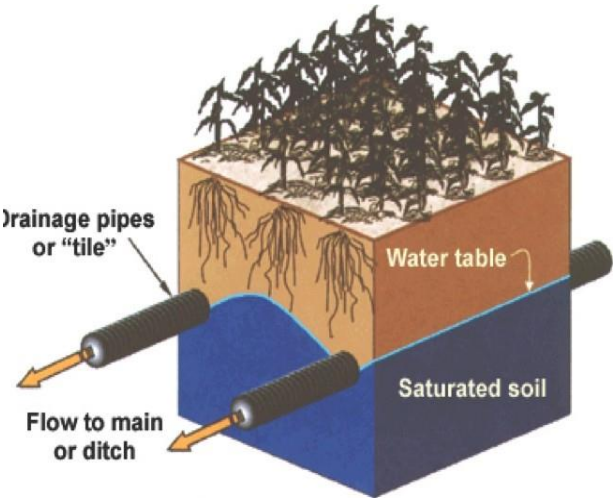
Notwithstanding the many environmental considerations in today's drainage law, no regulations specific to the practice of drain tiling have been enacted. As environmental requirements for surface drainage increased, incentives for drain tiling also increased. Drain tiling is largely a private activity conducted by individual landowners Drain tile outlets into public or private surface water bodies are not considered point sources of pollution under the Clean Water Act.

The Minnesota River basin has a particularly challenging combination of drainage issues. The Minnesota River, and tributary watersheds are perched on a glacial plain higher than the Minnesota River that flows in the deep valley created by the earlier Glacial River Warren. As a result of increasing streamflow, these tributaries are cutting back into the till plain and delivering large amounts of sediment to the Minnesota and Mississippi Rivers. Large flows in other Minnesota watersheds are also delivering sediment from streambanks, bluffs, and ravines, as well as from upland fields



Minnesota Altered Watercourse delineation, 2011, Source: Minnesota Pollution Control Agency and the University of Minnesota (Warmer colors indicate altered watersheds).

Water management in our cities and towns is similar, in many ways, to that in agricultural area, although it has developed differently. Objectives generally are to provide efficient drainage for development and to make storm water runoff more efficient. Over time, storm water management practices have been altered in urban areas by through requirements that runoff, from specific design storms, be retained on individual properties. Due to these requirements, storm-water retention basins are common in more-recently developed urban areas. The impact of these storm-water basins, on groundwater quality and quantity, is not well understood. In addition, the effects of impervious areas on groundwater recharge and quality, is poorly understood.



How drain tiles work. (Source: Minnesota Ground Water Association)

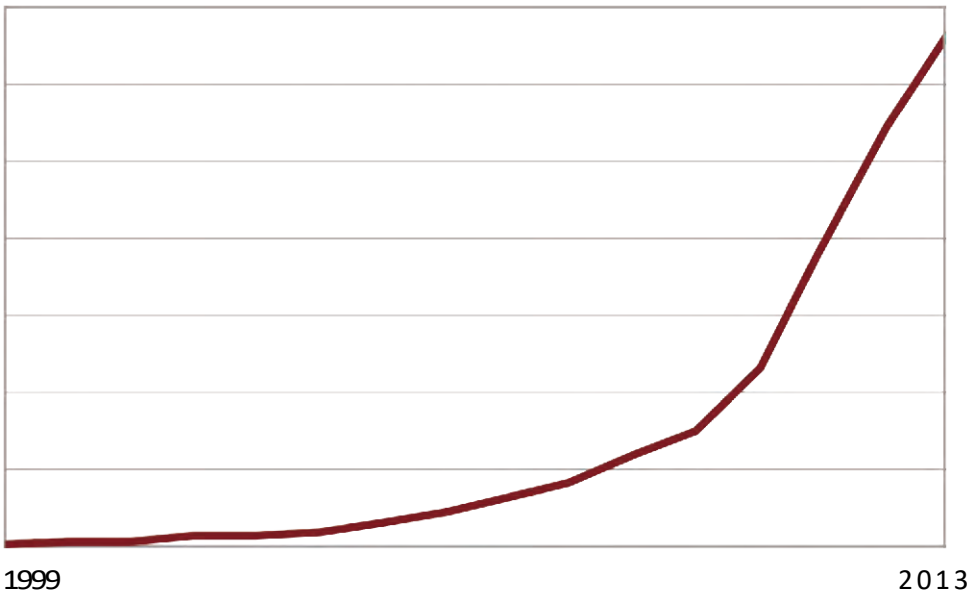
Benefits of Drainage

Poorly drained soils remain saturated or flooded after spring snowmelt, preventing efficient farm operations such as tilling and planting crops (Arman, 1963). Installation of agricultural drainage, both surface ditches and subsurface drainage, accelerate the transport of water from farm fields and results in greater crop yields (Beauchamp, 1987; Stoner and others, 1993). The most important outcome of a well-functioning subsurface drainage system is to manage soil moisture by moving water from shallow soils to surface-water features (Evans and others, 1992; Skaggs and others, 1994). Subsurface drainage lowers the water table and allow more robust root systems to develop beneath crops (Kanwar and others, 1988). By encouraging partial saturation of soil, drain tiles improve soil health by permitting biological processes that require the presence of oxygen (Moebius-Clune and others, 2017). Subsurface drainage systems also facilitate improved access and use of fields by eliminating wet surface areas (Fausey and others, 1987). By increasing root zone soil temperature and by reducing surface runoff from overflowing surface depressions, tiling provides numerous improvements to crop production. Agricultural drainage offers other benefits such as preventing crop drown out, aerating the soil profile for improved plant growth, limiting surface runoff and soil erosion, and allowing farmers better access to croplands (Fausey and others, 1987). Without agricultural drainage on much of Minnesota's croplands, it would have been difficult to realize high enough crop yields to remain economically viable.

Drainage and Information is Not Sufficient

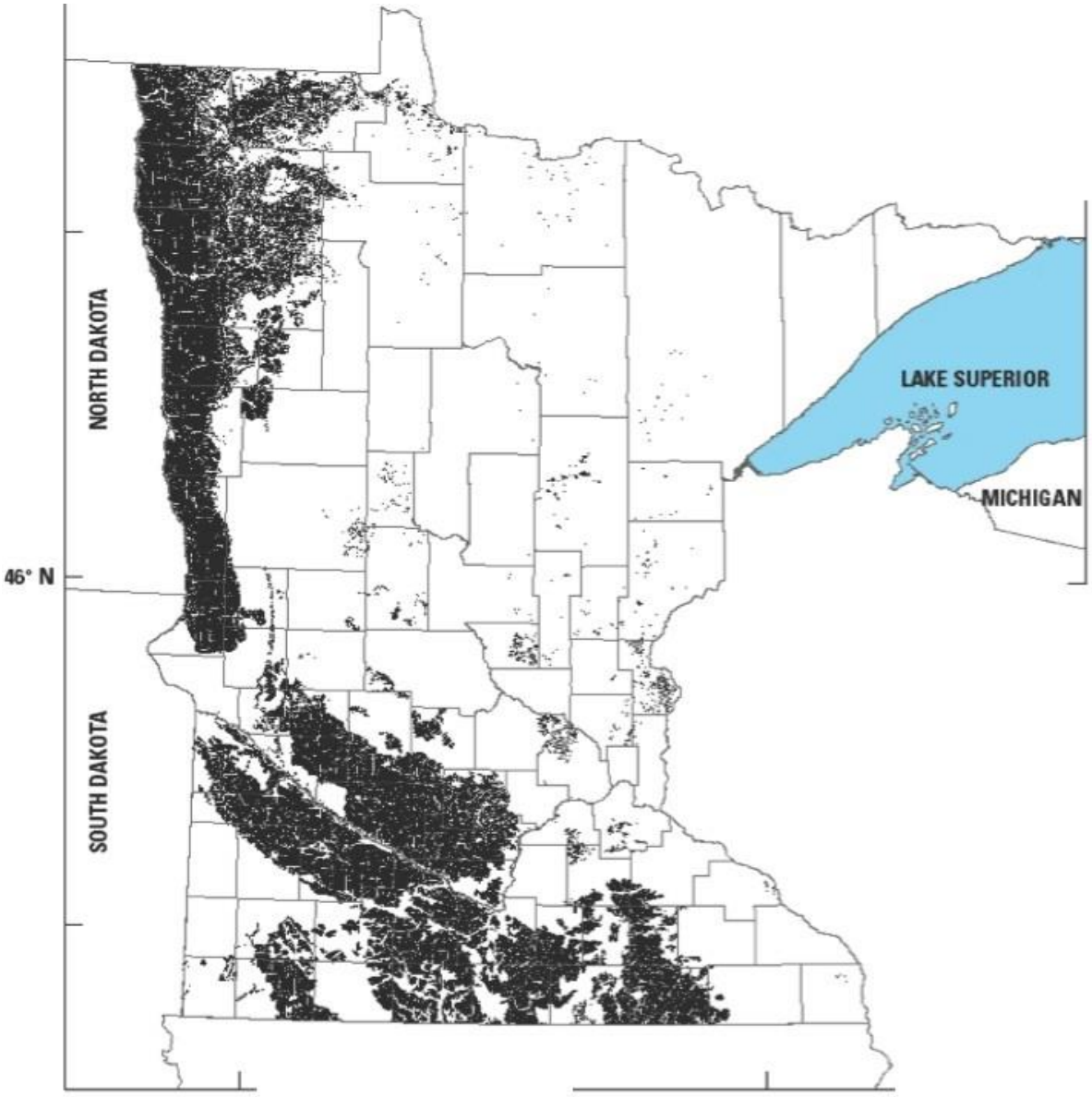
Agricultural subsurface drainage exists in large parts of southern and western Minnesota. The network of ditches for surface drainage has been augmented by installation of subsurface drainage tiles, primarily fabricated from clay or concrete. With the development of plastic pipe and efficient installation equipment, the systems have been expanded by patterned installation. However, the extent and configuration of subsurface drainage has not been fully mapped. Tile drainage is generally installed on private lands and the reporting of the installation or extent of acreage is not required by state law. There is no statewide record of subsurface field tile installation over time. Subsurface tile has been mapped in a few small watersheds, for example Seven Mile Creek Watershed).

There are eleven watershed districts that require permits for the installation of private or public drainage systems and another eleven watershed districts that require permits for the installation of drainage under certain circumstances. Although some watershed districts and soil and water conservation districts compile tile installation information within their boundaries, only the Bois de Sioux Water-shed District has records of permits required for private drain tiles. (Bbased on a paper titled: Tile Drainage Rules: A Review of Minnesota Watershed District Rules (Scott SWCD, 2017)).



Increasing trend in drainage tile permitted since 2000, as measured in miles of tile line for the Bois de Sioux Watershed, (Source Bois de Sioux Watershed District and the University of Minnesota. (Vertical lines are 2000 mile increments)

Estimates of tile drainage have also been made by the U.S. Geological Survey (Nagasaki and others (2016)). Their methodology included construction of a. model, based on the extent of cultivated land and the extent of poorly drained soils from the State Soil Geographic Data Base (STATSGO). The estimates were based on 30-meter dataset illustrating the density of tile drainage in each cell in square meters.



U.S. Geological Survey (USGS) tile drainage extent in Minnesota shown by a 30-rneter raster, based on Nagasaki and Wiecztek (2016)—Model of drainage for twelve Midwestern states.

The Minnesota DNR and MPCA also have created an approach to estimate drain time densities and have determined existing tile drainage information for eight areas. The sources of information include installation permits, aerial photographs and land-owner interviews. These methods estimate the amount of land within 50 feet of tile lines as a surrogate for effective drainage distance for tile lines. Combinations of soil (Natural Resources Conservation Service, 2005), slope (Minnesota Geospatial Information Office, 2017), and crop information (based on the 2011 U.S. Department of Agriculture (USDA) Cropland Data Layer (CDL); U.S. Department of Agriculture, 2013) were compared to the available mapped tile drainage densities.

Environmental Concerns Associated with Drainage and Water Retention

Surface Water Quantity

Drainage is a major component of change to both rural and urban landscapes. The impact of drainage has long been subject of research and debate. Because the overall purpose of drainage is to reduce or eliminate storage of excess water in soil, peak streamflow and total runoff to nearby streams are affected. However, the impacts, depending on the type of drainage used, as well as on the size of the drained watershed. Some of the considerations are as follows:

Flooding--The impact of drainage on flooding is complex. Flooding is a combined result of topography, soil type, characteristics of storms moisture conditions before the event, and the hydrology of the watershed (including drainage). Ditches generally increases flood peaks, at least in small watersheds, because they increase conveyance. In small watersheds, ditches and tile can increase flood peaks and flows because they reduce or eliminate closed basins that otherwise would store water. However, in other small watersheds, tiling tile may allow water flow through soil and reduce the downstream peak flows (Sands et al. 2012). During large rainfalls, or snowmelt events, water may not infiltrate quickly enough or the capacity of tile may be overwhelmed. Therefore, the influence of tile drainage on streamflow and flooding in large watersheds is not well understood. Subsurface tile appears to have little impact on flooding in large watersheds because large floods are dominated by surface runoff (Sands et al. 2012).

Effects of tile drainage on Water budgets--Zucker and Brown (1998) concluded that subsurface drainage reduces surface runoff by 29 to 65 percent, reduces peak flows from watersheds by 15 to 30 percent, but has little impact on the total annual flow from watersheds. A literature review by Blann et al. (2009) described the increase in total water yield as about 10 percent. Sands (2010) states that the potential for overall increases in water yield are from 5 to 10 percent. At the large watershed scale, Schottler (2013) attributed more than half of the increase in stream flow to changes in evapotranspiration brought about by increased agricultural drainage over past half century. It is generally considered that tile drainage affects water balances in several ways.

Drainage it thought to:

- **Reduce the time precipitation is stored in soil--**Only drainable water is removed by tile and ditches. The amount of plant available water (i.e., water held by soil particles against the pull of gravity) is not affected by drainage systems.
- **Change how water is stored on the land surface:** Some ditches and tile link streams to depressions that were previously not connected.
- **Reduce overland flow** (and soil erosion) when water instead moves through soil and subsurface tile.
- **Decrease evaporation** by removing areas of standing water.
- **Increase annual transpiration,** when rooting depth and productivity increase.
- **Increase the total amount of water that reaches streams** (annual yield). Models show that tiling increases the annual amount of water leaving the field.
- **Reduce, delay and extend peak flows in streams** after a precipitation or snowmelt events. Water takes longer to travel through soil to a tile system than to move overland or through ditches. This means rainfall will reach a stream later than if it only flowed overland. Soil continues to drain long after events, so elevated stream flow lasts longer than if the rain all reached the stream overland.

- **Increase watershed yield--**In areas with extensive subsurface tile drainage, lowering the water table over a large area results in a corresponding volume of water delivered by drains to downstream locations. This water would otherwise be transpired or would reach downstream locations as groundwater discharge.
- **Reduced Wetlands**--Drainage has resulted in the disappearance of much of Minnesota's natural wetlands. Prior to establishment of Minnesota statehood, wetlands accounted for more than 10 million acres in Minnesota, including prairie wetlands, peatlands, and forest wetlands that comprised approximately 19 percent of the total land area (Palmer, 1915; King, 1980). Only half of our pre-settlement wetlands remain, mostly in parts of the State that have not experienced widespread drainage such as northern Minnesota. Anderson and Craig (1984) estimated that the total acres of wetlands in Minnesota at the time of European settlement was 18.6 million acres, 8.8 million acres remained in 1984, and losses were much greater in the agricultural and urban areas than in the forested regions of the state.

Effects on Groundwater Quantity

The effects of subsurface drainage on groundwater recharge and aquifers have not been well established. Subsurface drainage intercepts infiltrating water and discharges the water to nearby surface water. However, the magnitude of the water-balance shifts from drained water to water that would have evaporated, run off, or recharged aquifers is poorly understood (Schuh, 2008). Jin and others (2004) studied water budgets for different soil types in the Red River Watershed and found that deep infiltration to groundwater accounts was a small percentage of the overall water budget. Prior to tile drainage, most water removed by drains is removed by evapotranspiration, or by natural discharge to surface waters, through lateral movement of shallow groundwater. Schuh suggested that most of the tile-drained waters in eastern North Dakota was captured from evaporation or transpiration, suggesting that tile drainage may have limited effects on groundwater recharge in those areas.

Water budgets in drained areas is difficult to quantify largely due to substantial variations in evapotranspiration rates, infiltration rates, and the general flow of groundwater. There is a lack of knowledge regarding the effect of drainage on deep infiltration that recharges aquifers. Existing recharge focuses on monitoring accessible parts of the water balance on already tiled areas. There is a lack of research focused on whether subsurface drainage increases or decreases evapotranspiration, increases or decreases the total runoff, changes water storage, or affects the recharge to underlying aquifers. These components dynamically interact and recharge to groundwater is generally considered to be a small component. Therefore, the question of whether groundwater recharge is affected is not well known.

Water retention and the effects of impervious surfaces are significant groundwater issues in urban areas. A study by the University of Minnesota addressed these issues in the Vermillion River watershed. The objective of the research was to quantify changes in groundwater recharge in an urbanizing watershed. Models were used to estimate water-budget components under stages of urban development. The study found that infiltration, evapotranspiration, and groundwater recharge all decrease as urban development increased. This study suggested that urban development significantly reduces recharge, by as much as 40 percent, due to an increase in impervious surfaces. The reduction was thought to be compounded by changes in vegetation

Effects on Water Quality

Although the effects of drainage on water quantity are complex, the impacts of drainage and water quality are more straightforward. It is generally accepted that retaining water on the land has beneficial effects for water quality, regardless of the watershed scale or size, and that these practices have downstream positive effects. Water-quality monitoring has shown that agricultural drainage, in particular the practice of subsurface drainage, provides an efficient flow path for nutrient deliver (nitrogen and soluble phosphorus) to surface water and that these flow paths are immediate when open inlets are incorporated into subsurface tile drainage systems. The negative consequences of agricultural drainage on surface water quality are well documented (Dinnes and others). Water quality impacts to streams and rivers, most frequently associated with drainage, include increased concentrations and loads of the following several constituents. These water quality concerns are as follows:

Nitrate--Results from the application of nitrate-containing fertilizers, nitrification of ammonium containing fertilizers and manure, and mineralization of organic nitrogen in manure and soil organic matter. If soil is permeable, water moves into the soil profile, and it can move out of the root zone and into tile or groundwater. Nitrate is soluble in water and not tightly bound to soil particles. Groundwater contamination with nitrate is most susceptible in areas of the state with coarse textured soils or shallow soils over porous bedrock. In Minnesota, most nitrate in surface water is delivered by subsurface tile drainage.

Phosphorus originates from fertilizers and livestock manure applied to the soil as an essential crop nutrient, and from mineralization of soil organic matter. Because phosphorus readily attaches to soil particles, it is less likely than nitrate to be transported through the soil profile. However, sufficient levels of soluble phosphorus for algae growth are being found in tile drainage water in some agricultural areas where soil phosphorus concentrations are elevated.

Pathogenic bacteria originate from wildlife and livestock manure, and malfunctioning human waste treatment systems. While not all bacteria are pathogenic, contamination of drinking water sources by pathogens is a health hazard.

Hypoxia: Agricultural basins with a high percentage of agricultural drainage have been implicated as part of the cause of the Gulf of Mexico hypoxia zone due to excessive nitrogen export (Goolsby and Battalion, 2001; Randall and Mulla, 2001

Suspended sediment is the result of erosion of soil from field surfaces, open–tile inlets, gullies, ravines, and streambanks, as well as collapse of near-channel bluffs from toe-slope erosion and other mechanisms. Drainage can increase sediment deliver to streams in direct and in indirect ways. Open-tile inlet structures can introduce sediment directly to streams during runoff events. Other forms of drainage can increase peak streamflow, resulting in field, streambank, bluff, and ravine erosion. Ravines and large gullies often supply large volumes of sediment eroded per unit of stream flow. Upland, streambank, cliff, and ravine erosion are among the largest sources of sediment to the Mississippi River. Sediment derived from upland soils can be high in phosphorus, while parent material in bluffs is often much lower.

Tile drainage is a major pathway for nitrate loss to surface water. According to the MPCA, subsurface drainage, in Minnesota, contributes 37 percent of nitrogen contamination to surface water (MPCA, 2013). In addition, tile drainage waters often bypass saturated riparian buffers next to streams (Dinnes and others, 2002). Consequently, the natural denitrification potential of these zones is lost where water bypasses buffers. An important part of the reduced denitrification potential is the shortened travel time of groundwater to surface water. Schilling and others (2015) found that mean shallow groundwater travel times were reduced with increasing intensity of tile drainage intensity in a study in Iowa.

The effect on phosphorus delivery to surface waters is assumed to be of less concern because subsurface drainage reduces overland runoff. Therefore, runoff- derived phosphorus from soils in tile-drained fields. However, some studies have found that phosphorus leaching from tile drainage can be large. King and others (2014) showed that tile drainage accounted for 47 percent of discharge and 48 percent of the dissolved phosphorus in the Upper Big Walnut Creek watershed in Ohio.

The effects of drainage on groundwater quality are not well understood. However, in urban areas, storm water retention has potential to affect groundwater quality. A study by the USGS (Tornes) focused on the impact of rain gardens on groundwater quality. Selected constituents, considered to be indicative of runoff, included suspended solids, nitrogen, phosphorus, chloride, and gross measures of dissolved constituents. Although the changes in mass transported throughout the system relative to sources were not measured, the data provide an evaluation of concentrations in components of the water system in rain gardens. When outflow was measured it contained reduced concentrations of suspended solids and most nutrient species associated with particulate material, as compared to inflow. Many of these constituents settled in the rain gardens, infiltrated into groundwater or were assimilated by plants. Site design, including capacity relative to drainage area and soil permeability, were found to be important in the efficiency of rain-garden operation. Vegetation type likely affects the infiltration capacity, nutrient uptake, and evapotranspiration of a rain garden and probably the resulting water quality. The long-term efficiency of rain gardens was not determined.

Reducing the Impacts of Drainage and Water Retention

There are many water-related concerns associated with water drainage and water retention. Rivers and streams integrate the effects of these management practices. Precipitation, vegetative cover, land management geology, soils, and landscapes characteristics all influence our rivers. In combination with other watershed characteristics, the changes we have made to natural drainage conditions magnify downstream in our rivers. These effects include excess nutrients, high sediment levels, flooding, property loss, and habitat loss. During the last half of the century, we have experienced increases in the volume of water in streams, the width of stream channels, and the amount of sediment being transported from fields, streambanks, bluffs, and ravines, primarily in southern Minnesota. The sources of sediment are primarily the result of greater stream and river flows. Increases in channel-shaping flows are related to changes in precipitation, decreases in transpiration, changes in agriculture, decreases in surface water storage due to drainage, reduced evaporation as well as changes in soil water holding capacity. To protect our rivers, farms, and wildlife, more water needs to be stored and slowly released using land and water management practices. Better water

management practices will reduce erosions and sediment deliver as well as reducing nitrate-nitrogen and phosphorus. This will, in turn, improve our streams and rivers. Changes in land and water management have potential to protect and to improve downstream conditions by modifying water quality and flow. As a state we need to determine how best to apply these management practices and how to incentivize them to maintain the productivity of our agricultural and urbanized lands.

Strategies for reducing the Impacts of Drainage

Land and water management's practices have great potential to protect and to improve water quality by modifying water use and flows. The practices are most effective when then are combined in sequence in a watershed. Individually or when combined, these practices have multiple impacts that include: improved soil structure and water holding capacity, reduced channel erosion, improved water quality and in-stream habitat, and reduced flooding. Ponds and wetland restoration for water storage in agricultural drainage systems improve drainage system efficiency. They dampen peak flow, and reduce the size requirement for ponds and ditches downstream. Practices that add perennial vegetation or that diversify channel structure also reduce channel erosion and create habitat.

These practices can be characterized according to where they are located in the various landscapes and according to the effects that they have on the hydrology of a watershed. In-field crop and soil management are most appropriate in areas of intense agriculture. These practices improve watersheds by increasing transpiration, water infiltration, soil-water holding capacity as well as the resistance to soil erosion. Treatments in drained landscapes include increased drainage management coupled with water treatment and retention/detention structures, constructed wetland, ponds, irrigation reservoirs, or modified ditch channels. Treatments that are move applicable to more slopping landscapes include grassed waterway, filter strips, buffer strips, terraces and water and sediment control basins. Riparian area modification and orientation, coupled with stream channel protection are most applicable near outflows of watersheds. Because treatment methods need to be designed for local landscapes, climate and cropping systems, systems need to be developed that fit individual watersheds.

The costs for the practices, described below, differ considerably with size, location and other factors:

Soil Management: Enhancing the ability of the soil to infiltrate and store precipitation. Soil and crop management in agricultural fields affects infiltration rates and water holding capacity through changes to soil structure and soil organic matter. In-field crop and soil management is appropriate in areas of intense agriculture. They improve watersheds by increasing transpiration, water infiltration, soil-water holding capacity as well as the resistance to soil erosion.
Increased Transpiration: Manage the amount and distribution of crop transpiration throughout the year. Transpiration is the largest user of precipitation water, and its timing relative to rainfall distribution has a great influence on how much surplus water will move off the land.
Managing Overland Flow: Manage overland flow with crop residue, contour farming, and vegetated flow pathways like waterways and filter strips that slow, filter, and partially infiltrate surface runoff.
Subsurface Drainage: Managing subsurface drainage flow by sizing, depth, and spacing of drainage pipe to control rates of drainage water leaving the field. Control structures can also be installed in the drainage system to allow temporary water storage for later crop use or timed release.
Water Storage: Increasing water storage, including natural storage in wetlands and other depressions, and artificial storage with constructed wetlands, terraces, water and sediment control basins, down-sized culvert retention, weirs, and large detention basins.

Streambank Protection and Riparian Area Restoration: Establish measures to protect channels and restore riparian areas.
Green cover crops and Agricultural Alternatives to corn and soybean rotations have great potential to slow the delivery of water, sediment and nutrients to our ground and surface water. The challenge is in finding crops that can compete with corn and soybeans economically.
Conservation Drainage Practices include retention structures, shallow drainage, woodchip bioreactors, saturated buffers, gravel inlets, two-stage ditch design, constructed wetland, ponds, irrigation reservoirs, or modified ditch channels, and various kinds of storage basins. These practices are most effective when then are combined is sequences in a watershed. Individually or when combined, these they have multiple impacts that could include improved soil structure and water holding capacity, reduced channel erosion, improved water quality and in-stream habitat, and reduced flooding. Treatments applicable to slopping landscapes include grassed waterway, fitter strips buffer strips, terraces and water and sediment control basins.
Pond and wetland restoration improve drainage system efficiency. They dampen peak flow, and reduce the size requirement for ponds and ditches downstream. Urban storm water retention facilities reduce Peak flows. Peak flows drive streambank erosion. Storage is especially effective in small watersheds that have a high sediment yield. However, the impact of stored waters in urban areas is not well established. We do not fully understand if groundwater recharge is increasing or decreasing. We also do not understand time impacts we are having on groundwater quality.

Managing Drainage by Province: The Minnesota Groundwater Association has proposed adoption of drainage provinces to aid in understanding and managing regional differences in subsurface drainage and its effect on groundwater resources. Built upon the concept of groundwater provinces, three distinct drainage provinces consist of: (1) the Southeastern Province; (2) the Southcentral Province; and, (3) the Western Province. The distinct geology and the soils in each of these regions have implications for each region's subsurface drainage density and the potential implications for groundwater.

Buffers: Buffers along streams, rivers and ditches have good potential to slow water, sediment and nutrient delivery as well as increasing biological habitat. The Legislature directed the Board of Water and Soil Resources (BWSR) to coordinate the Drainage Work Group to evaluate and develop recommendations to help Minnesota drainage authorities accelerate the acquisition and establishment of buffer strips and alternative practices adjacent to public drainage ditches and associated compensation of landowners. The impetus for this action was the 2015 Buffer Law which required landowners to establish buffer strips, or alternative practices, along all public drainage ditches. Recommendations were developed by the Drainage Work Group with BWSR staff support. The Advisory Committee formulated actions for statutory, funding, and administrative policy changes, and outreach. The report was approved by the Drainage Work Group, accepted by the BWSR Board, and transmitted to the Legislative Policy Committees. The recommendations were categorized according to the type of action required and grouped according to the potential for the recommended actions to accelerate the acquisition and establishment of drainage system buffer strips, alternative practices and landowner compensation. The following recommendations should be given consideration for adoption and the process undertaken by the Drainage Working Group should be consider for other water management strategies outlined in this report. The recommendations of the Drainage Working Group are as follows:

- Amend Section 103E.021 to allow, with landowner consent, a drainage authority to seed and establish ditch buffer strips in advance of drainage law proceedings to determine damages and acquire a permanent easement.

- Make a statutory change in Chapter 103E to allow drainage authorities to acquire and establish buffer strips with apportionment of the costs on a per acre basis equally among all lands in the contributing watershed of the drainage system.
- Clarify Section 103E.021, Subd. 6 to expressly state that upon findings and an order, the drainage authority is vested with jurisdiction over property rights acquired for 16.5 ft. ditch buffer strips.
- Revise Section 103E.351 Redetermination of Benefits and Damages to enable 26 percent of benefited landowners, or owners of 26 percent of the benefitted lands, to petition a redetermination of benefits in order to update outdated benefited area(s) and benefits on record and more equitably apportion drainage system costs.
- Create an exemption for landowners under Section 103F.48 for drainage systems, which do not have a specific DNR shore land classification, where a buffer has been acquired, established and enforced under Chapter 103E.
- Increase and extend funding for the Buffer Cost Share program based on an estimate of need.
- Modify the Buffer Cost-Share program to allow drainage authorities to access funds on behalf of the drainage system, in coordination with applicable landowners and Soil and Water Conservation
- Districts, to establish buffer strips, but not to acquire land rights, along Chapter 103E ditches in accordance with Section 103F.48.
- Provide priority consideration for eligible external sources of funding to drainage authorities based on progress toward acquisition and establishment of buffer strips under Chapter 103E.
- Modify Section 103E.305 to clearly enable county appraisers or deputy appraisers to serve as viewers where no conflict of interest exists.
- Clarify Section 103E.071 County Attorney, to make it clear that drainage authorities, including counties, may hire outside legal counsel per Section 388.09, Subd. 1.
- Provide funding from outside the drainage system to cover the water quality purposes for acquiring and establishing Chapter 103E ditch buffer strips.
- Investigate a potential funding source and sponsor to complete a viewers' guidance manual.
- Develop a lower cost method to do redeterminations of benefits or funding to cover the costs of redeterminations of benefits.
- For a ditch system that doesn't have adequate cash flow capability, modify an existing or create a new loan program for buffer strip acquisition and establishment.
- Drainage authorities should consider inventorying alternative practices, such as side inlets and other infrastructure (e.g. tile outlets), that may affect the integrity and management of the system.
- Develop a coordinated outreach effort landowners, drainage authorities and their advisors, involving AMC and MAWD, with assistance from BWSR and other partners, to inform them of the drainage law provisions and potential external financial assistance for acquisition and establishment of drainage system buffer strips. Suggested elements to include:

Legislative Water Commission

65 State Office Building St. Paul, MN 55155-1201 Phone: (651) 284-6431 Fax: (651) 297-3697 TDD (651) 296-9896

House		Senate	
Rep David Bly	Rep Clark Johnson	Sen Paul Anderson	Sen Jason Isaacson
Rep Peter Fischer	Rep John Poston	Sen Rich Draheim	Sen Bill Weber
Rep Glenn Gruenhagen	Rep Paul Torkelson	Sen Kent Eken	Sen Charles Wiger

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1:00 pm
Wednesday, August 8, 2018
Hearing Room 10 ~ State Office Building

Chairs:
Representative Paul Torkelson
Senator Chuck Wiger
Director: Jim Stark

Agenda

I. Welcome, introductions, meeting purpose and format (15 min)
II. Brief presentation of the issue--Keeping Water on the Land (15 min)
III. Small groups--review recommendations, rank and comment (40 min)
IV. Small groups--report out (20 min)
V. Discuss next steps, collect review sheets, and thank you (10 min)
VI. Additional meeting dates:

- Lake Sustainability (August 22) Room 10, State Office Building
- Desired Future State for Minnesota Waters (August 29) Room 5, State Office Building

Legislative Water Commission

2019 Recommendation Feedback

Keeping Water on the Land—

Water Retention

Co-chairs: Senator Wiger Representative Torkelson

Jim Stark, Director

Straight River, Becker County

- Introductions
- LWC members
- Legislators
- Kris Van Amber
- Kasey Gerkovich
- Jim Stark

Legislative Water Commission

- REVIEW-state agencies' water policy reports & recommendations
- GATHER- data and comments
- **LEGISLATIVE RECOMMENDATIONS: Assist legislature in formulating legislation**
- SHARE-data & information with LCCMR, CWC, legislative standing committees, upon request
- COORDINATE-with the CWC

How can the recommendations be used?

- Propose/promote/support legislation
- Resource for stakeholders regarding legislative initiatives
- Recommendations to guide or suggests programs/planning/funding:
  - LCCMR
  - CWC
  - Agencies

LWC: 12 Members

Body	First Name	Last Name	Party	District	Home
Sen	Paul	Anderson	R	44	Plymouth
Rep	David	Bly	DFL	20B	Northfield
Sen	Rich	Draheim	R		Madison Lake
Sen	Kent	Eken	DFL	4	Twin Valley
Rep	Peter	Fischer	DFL	43A	Maplewood
Rep	Glenn	Gruenhagen	R	18B	Glencoe
Sen	Jason	Isaacson	DFL	19A	Shoreview
Rep	Clark	Johnson	DFL	19A	N. Mankato
Rep	John	Poston	R	9A	Lake Shore
Rep	Paul	Torkelson*	R	16B	Hanska
Sen	Bill	Weber	R	22	Luverne
Sen	Chuck	Wiger*	DFL	43	Maplewood

Agenda

- 2018 Process
- 2019 Process
  - Overview of possible 2019 Issues
  - Describe Today's Issue
  - Small Group Review/Report
  - Next Steps

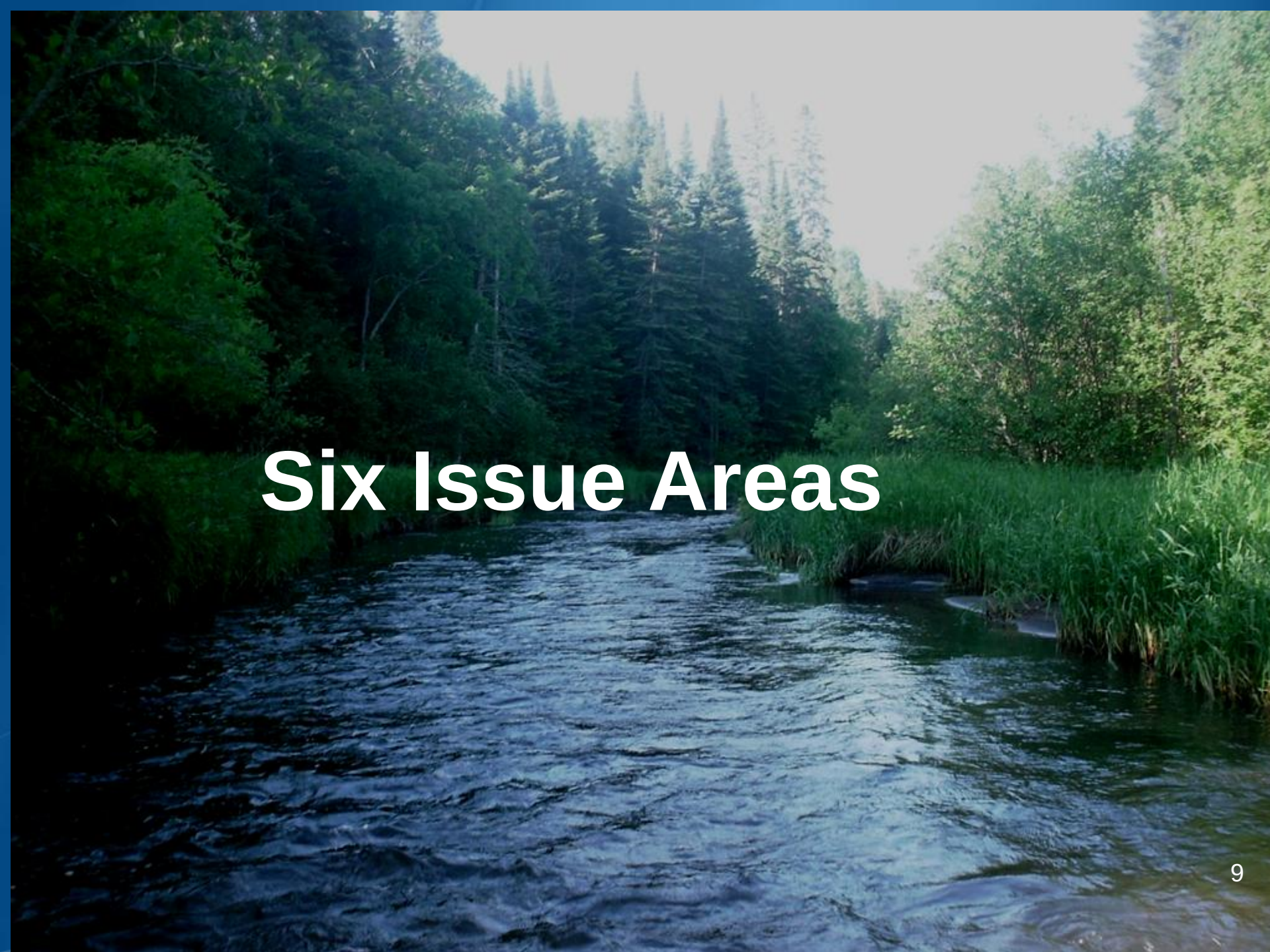
2019 Recommendations

- Six Issues with recommendations:
- Based on:
  - 2018 session process
  - LWC guidance
  - Stakeholder advice
  - Review of many plans/documents

A Firm Foundation

- 1989- GW Act
- 1999- USGS Sustainability Report
- 2004- G16 Impaired Waters Plan (MPCA)
- 2005- DNR/GW Report
- 2006- Clean Water Legacy Act
- 2006- ENRTF Sustainability Report
- 2008- Clean Water Amendment
- 2008 Legislative Water Sustainability Framework
- 2009- EQB Sustainability Report
- 2012- GW Management Area Plans (DNR)
- 2017- Freshwater Society Reports on Water Sustainability

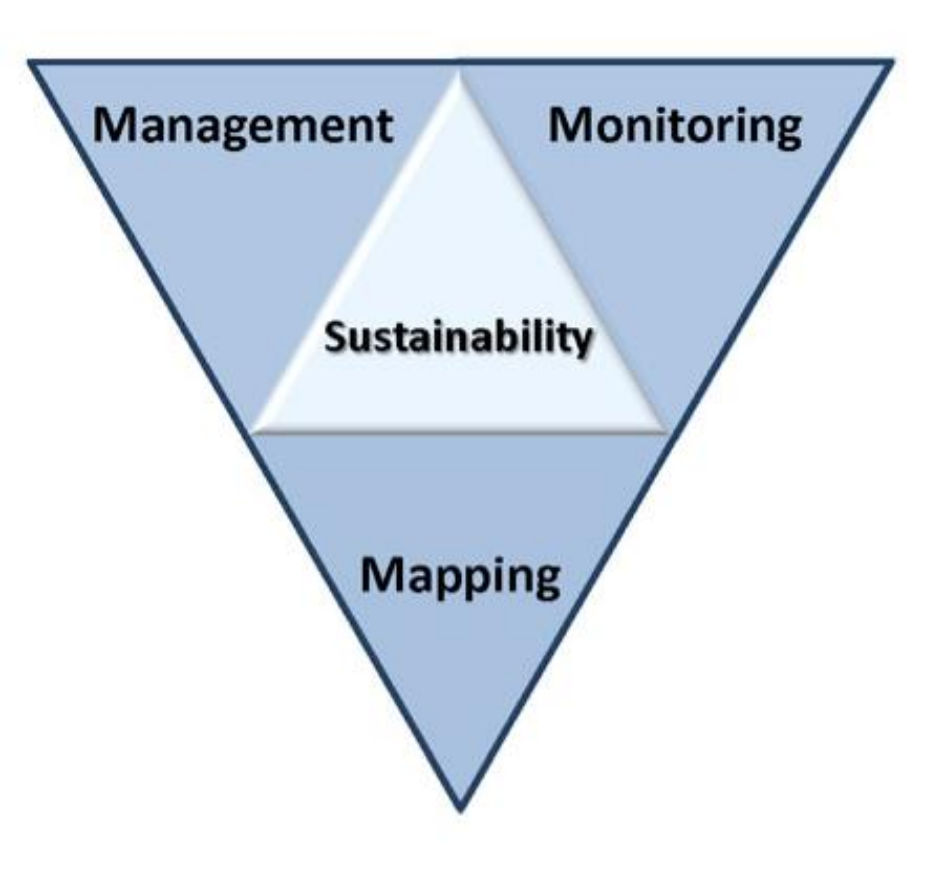
(Worthington, MN-2012)


Six Issue Areas

2019 LWC Issues and Recommendations

1. ***Wastewater****
2. *Drinking water**
3. *Groundwater*
4. *Sustainable Lakes*
5. **Water retention**
6. *Future state*

* Short term




Today's Issue

Keeping Water on the Land- Water Retention

Important issue:

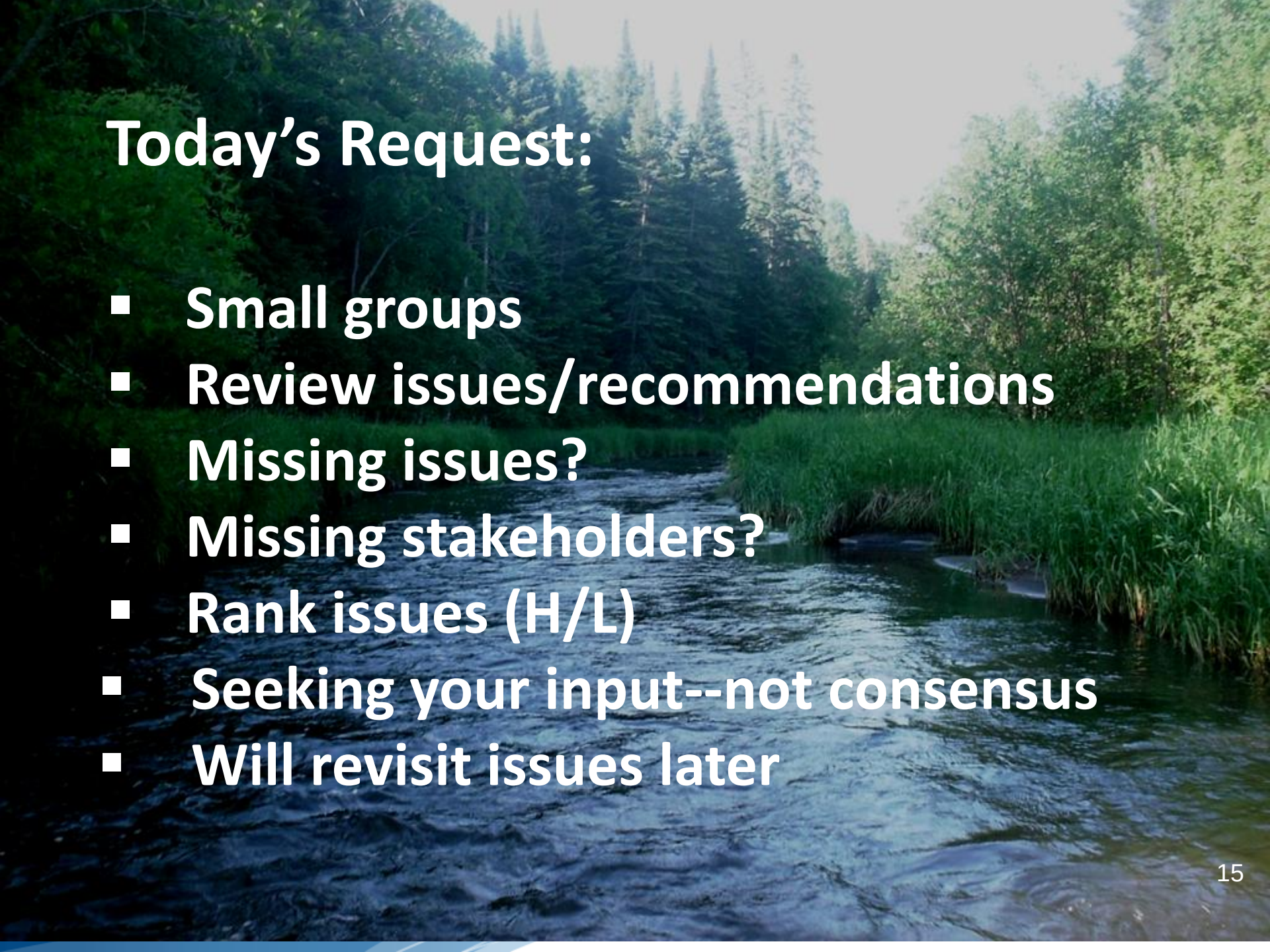
- Urban and agricultural drainage have been essential to growth and development
- Much or the state is affected
- Drainage has many benefits
- Many environmental impacts
- BMP's can reduce impacts
- Need a better strategic plan for BMP placement- type and location
- Provide assistance/incentives to promote conservation and agricultural productivity and in the right places

Recommendations: Keeping Water on the Land

1. Map subsurface drainage
2. ROI on drainage BMPs
3. “Drainage Working Group” for all BMPs
4. Map and replace open tile inlets
5. Quantify impact of tile drainage on GW
6. Quantify effects urban water retention on GW
7. Quantify effects of drainage on water balances
8. Identify appropriate watershed locations for BMPs
9. 1Watershed/1 Plan approach for siting BMPs

Recommendations: Keeping Water on the Land-2

10. Evaluate drainage impacts on wetlands
11. Assess emerging contaminant threats in urban storm water ponds
12. Healthy soil/healthy water initiatives
13 Support recommendation of the Drainage WG
14 Quantify/protect aquifer recharge in drained areas
15. Maintain and upgrade rural culverts and ditches
16– Missing recommendations**



Today's Request:

- Small groups
- Review issues/recommendations
- Missing issues?
- Missing stakeholders?
- Rank issues (H/L)
- Seeking your input--not consensus
- Will revisit issues later

Resources:

- Recommendations
- Background issue paper- draft

Small Group Exercise

- Discuss recommendations
- What's missing?
- Who's missing?
- Rank (H,L)
- Are they actionable- Move the needle?
- Appropriate for Legislation/ Funding/Agency or Stakeholder Resource?
- Consensus
- Report back:
- Top issues (1-2) and missing issue
- 40 minutes

Next Steps

- Complete Issue papers
- Revise recommendations based on your input
- Feedback from LWC Members
- Additional Feedback from Stakeholders
- Final consensus by LWC
- Recommendations to Legislature- before session
- Legislative Briefings with Committees

Small Group Exercise

- Discuss recommendations
- What's missing?
- Who's missing?
- Rank (H,M,L)
- Are they actionable- Move the needle?
- Appropriate for Legislation/ Funding/Agency or Stakeholder Resource?
- Report back:
- Top issue and most important missing issue
- 40 minutes

Thank You

Next Steps

- Please turn in your spreadsheet (1 per group)
- Revise Issue Statements
- Revise Recommendations
- Initial Consensus from LWC
- Feedback from Stakeholders
- Final consensus by LWC -November
- Recommendations to Legislature
- Legislative Briefings with Committee


Thanks!

Minnesota Association of Watershed Districts
www.mnwatershed.org | exec.MAWD@gmail.com

Memo

DATE: August 10, 2018

TO: MAWD Members

FROM: Emily Javens, MAWD Executive Director

RE: 2018 Resolutions Process and Timeline

It is that time of year for MAWD members to submit their policy recommendations through our resolutions process. Here are the next steps and timeline:

August / September	Districts discuss and approve resolutions at their local board meetings
October 1	Deadline to submit resolutions and background information documents to the MAWD office at exec.MAWD@gmail.com
Mid-October	Resolutions Committee will review resolutions, garner further information when necessary, and make recommendations on them
November	Resolutions (along with committee feedback) will be emailed to each district by the end of October. Districts should discuss the resolutions at their November meetings and decide who will be voting on their behalf at the annual meeting.
Nov. 29 – Dec 1	Discussion and voting to take place at annual meeting
December / January	Legislative Committee will meet to formulate a recommendation to the MAWD Board of Directors for the 2019 legislative platform
January	MAWD Board of Directors will finalize the 2019 legislative platform

Resolutions passed by the membership at the annual meeting will remain MAWD policy from year to year unless changes are proposed and adopted by members at a future meeting.

NOTE: we are working to put together a formal policy book that will articulate ALL long-standing policies, as well as the more short-term legislative initiatives. In the meantime, we are providing the action statements ("therefore be it resolved" statements) that passed the membership in years 2013-2017, sorted by category. This is NOT a comprehensive list of MAWD policies, but it's a start. We've also included the activity worksheet that has been provided in the past. Likewise, this document is not a complete tracking of recent legislative efforts. Please refer to previously distributed legislative updates for that information. Lastly, we've included the resolutions that passed in 2017 for your reference.

Tips and tricks for writing resolutions and getting them passed can be found on our website at www.mnwatershed.org/s/July17_Resolutions101.pdf

Please feel free to contact me if you have any questions at exec.MAWD@gmail.com or (612) 790-0700.

THANK YOU FOR YOUR EFFORTS IN POLICY DEVELOPMENT!

2018 MAWD Resolutions

Background Information

Proposing District: _____

Contact Name: _____

Phone Number: _____

Email Address: _____

Resolution Title: _____

_____

Background that led to the submission of this resolution:

Ideas for how this issue could be solved:

Anticipated support or opposition from other governmental units?

This issue is of importance to (Check one)

To the entire state _____
Only our region _____
Only our district _____

Approved MAWD Resolutions Years 2013 – 2017

Sorted by Topic

IMPORTANT: THIS DOCUMENT IS ONLY A COLLECTION OF THE ACTION STATEMENTS THAT WERE APPROVED BY MAWD MEMBERS IN THE LAST FIVE YEARS. IT IS NOT A FULL POLICY BOOK. WE ARE IN THE PROCESS OF PUTTING TOGETHER A MORE COMPLETE COLLECTION. PLEASE DON'T HESITATE TO CONTACT EXECUTIVE DIRECTOR EMILY JAVENS WITH QUESTIONS AT EXEC.MAWD@GMAIL.COM OR 612-790-0700. THANK YOU!

WATERSHED DISTRICT AND PROJECT FUNDING

2017-03 Conservation Reserve Program (CRP) Support in the 2018 Federal Farm Bill

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts supports a strong CRP element in the Farm Bill conservation title, including but not limited to CRP reauthorization with an increased acreage cap, maintenance of continuous signup for high value environmental practices such as buffers and wetland restoration, maintenance or expansion of the grasslands program, and removal of restrictions on incorporation of drainage water quality management practices, while maintaining other successful federal conservation programs for agricultural lands such as EQIP and CSP;

BE IT FURTHER RESOLVED that MAWD will coordinate with the Minnesota Board of Water and Soil Resources, Minnesota Department of Agriculture and others to advocate to and work with the State's Congressional delegation and other federal representatives to achieve this policy goal.

2017-05 General Fund Levy Cap Increase for the Middle Fork Crow River Watershed District

THEREFORE, BE IT RESOLVED the Minnesota Association of Watershed Districts support the efforts of Middle Fork Crow River Watershed District to draft and advance special legislation affecting a change in its general fund levy cap.

2017-06 Stable Funding for the Flood Damage Reduction Program

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts support requesting the MN Legislature provide stable funding for the DNR FDR program. A suggested sustainable level of funding is $25 million per year for the next 10 years.

2016-03 Tax-law Treatment of Conservation Easements

THEREFORE, BE IT RESOLVED that MAWD pursue a legislative initiative to define "riparian buffer" for purposes of conservation easements in state tax code and to establish an administrative procedure whereby a watershed organization would certify, for purposes of section 273.117, a conservation easement or restriction as meeting the water quantity and quality purposes cited in the tax law and therefore be eligible for a reduction in estimated market value.

2016-06 Increase General Fund Levy Cap to $500,000

THEREFORE, BE IT RESOLVED that MAWD supports legislation to increase the cap on the general fund levy to $500,000.

2016-04 Watershed District Fund: Statutory Correction

THEREFORE, BE IT RESOLVED that MAWD renew its direction to staff to work with the Board of Water and Soil Resources to sponsor an amendment to section 103D.905, subd. 9, to include all current and future, state-wide grant, cost share or low interest loan programs.

2015-02 Road Raises for Cities with Levees

THEREFORE, BE IT RESOLVED that it (MAWD) supports the State of Minnesota providing financial support through the *(MN DNR Flood Damage Reduction)* Program to cost share with local, state, and federal road authorities to provide road raises as an additional feature of *(flood control levee)* projects.

2014-01 Repair of Flood Damage in the Prior Lake Outlet Channel

THEREFORE, BE IT RESOLVED that MAWD supports legislative action that will help pay for damages to the PLOC (Prior Lake Outlet Channel) due to the 2014 flood; and

BE IT FURTHER RESOLVED that MAWD supports legislative action that will help pay for future flooding mitigation actions in the Prior Lake – Spring Lake Watershed District, such as developing and implementing a flood damage reduction and preparedness response plan as well as other actions.

2014-04 Leasing Lands Purchased with State General Obligation Bonds

THEREFORE, BE IT RESOLVED that MAWD seek a statutory amendment to allow reduced property tax valuation for conservation easements associated with water quality projects, sponsored by local government units.

2013-05 Statutory Correction on WD Funds

THEREFORE, BE IT RESOLVED the MN Association of Watershed Districts directs its staff to work with the Board of Water and Soil Resources to sponsor an amendment to section 103D.905, subd. 9, to include all current and future, state-wide grant, cost share or low interest loan programs for state approved projects.

2013-01 Engineering Study for Floodwater Retention Ponds, Lac qui Parle-Yellow Bank WD

THEREFORE, BE IT RESOLVED that MAWD support funding of $500,000 from the legislature for engineering analysis for two floodwater retention projects as identified in the PL 87-639 study at sites located in Section 29 of Norman Township, Yellow Medicine County, on the South Branch of the Lac qui Parle River and in Sections 29/30 of Florida Township, Yellow Medicine County, on the West Branch of the Lac qui Parle River.

COORDINATED WATERSHED MANAGEMENT

2017-01 State Watershed Program Coordination with Local Watershed Implementation

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts pursue legislation requiring state Clean Water Land and Legacy Funds for One Watershed, One Plan and the WRAPS programs to provide a direct linkage and alignment with each other as well as local watershed plan implementation; and

BE IT FURTHER RESOLVED that the Minnesota Association of Watershed Districts pursue legislation to codify the Watershed Implementation Partnership funding recommendations from the Local Government Roundtable, 2016 Funding Workgroup Policy Paper; and

BE IT FURTHER RESOLVED that Clean Water Land and Legacy funds for One Watershed, One Plan and the WRAPS programs do not duplicate local efforts and are focused towards local watershed implementation.

2017-07 Creation of a Stormwater Reuse Task Force

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts pursue legislation requiring creation of a Stormwater Reuse Task Force with membership from Watershed Districts, Cities, Counties, State Agencies and other Stormwater Reuse implementers; and

BE IT FURTHER RESOLVED that the Stormwater Reuse Task Force should be charged with developing recommendations that further clarify and/or replace the information in the Water Reuse Report that relates to Stormwater Reuse BMP's.

2015-06 Establishment of Minnesota River Basin Commission

THEREFORE, BE IT RESOLVED that MAWD supports the legislative establishment of a MN River Basin Commission to provide effective and efficient proactive comprehensive basin planning; administration; project development; implementation; construction and maintenance or water resource projects and programs of benefit to the MN River Basin with a focus on water quantity and water quality management.

WATERSHED DISTRICT OPERATIONS

2016-01 Making Human Resources Expertise Available to Districts through MAWD

THEREFORE, BE IT RESOLVED that MAWD research potential options of making human resources expertise available to districts and make every effort to assure districts have access to the expertise they need to effectively manage their organizations.

2015-03 Increase Manager's Per Diem

THEREFORE, BE IT RESOLVED that MAWD seek legislative authority to amend Minn. Stat. section 103D.315, Subd. 8 as follows: "Subd. 8. Compensation. The compensation of managers for meetings and for performance of other necessary duties may not exceed $100 per day. Managers are entitled to reimbursement for traveling and other necessary expenses incurred in the performance of official duties."

2016-05 Amend MN Open Meeting Law to Allow WD Manager Meeting Participation via Electronic Means Outside the Territorial Limits of the WD or State

THEREFORE, BE IT RESOLVED that MAWD direct its staff to wok with the MN Department of Administration to sponsor an amendment to section 13D.02 to clarify that the term "open and accessible to the public" can include a location or locations outside of the geographical jurisdiction of the entity, including out of state.

2013-06 Authorization to Conduct WD meetings via Conference Call or Other Electronic Means

THEREFORE, BE IT RESOLVED that MAWD supports legislation extending the operation of MN Statutes section 13D.015 to watershed districts to allow officials to participate in public meetings via telephone or other electronic means.

2013-04 Watershed District Boundary Correction: Consolidated Process

THEREFORE, BE IT RESOLVED that MAWD recommends that BWSR pursue funding and develop an abbreviated process, for consenting Districts, to correct or reestablish Watershed District boundaries using the current and more accurate technology. MAWD suggests eliminating petition and hearing requirements when a watershed district or districts request boundary changes based on errors identified by improved mapping technology, in favor of a request, notice, or comment process.

2013-08 Support Sales Tax Exemption for WDs

THEREFORE, BE IT RESOLVED that MAWD supports legislation extending the sales tax exemption to Watershed Districts in the state.

MAWD OPERATIONS

2014-03 Development, Adoption, and Communication of MAWD Legislative Agenda

THEREFORE, BE IT RESOLVED that MAWD adopt and communicate to the membership no later than the third Tuesday in January each year a well-articulated legislative agenda and lobbying activities and processes, and

BE IT FURTHER RESOLVED that the legislative agenda have a structured inclusive approach to legislative lobbying that promotes active participation by the Watershed Districts, their staffs and boards, and

BE IT FURTHER RESOLVED that the legislative agenda include a comprehensive social media strategy that informs and calls people to action in support of the legislative agenda.

PERMITTING

2015-01 Encourage DNR to Permit Storing Water on DNR Land

THEREFORE, BE IT RESOLVED that MAWD should appoint a committee to in turn propose meeting with the DNR to discuss the potential for temporarily storing water on existing wetlands controlled by the DNR in the times of major flood events.

2015-05 Improvements in Process with Permitting Authorities for Water Quality Improvement Projects

THEREFORE, BE IT RESOLVED that MAWD call on all permitting authorities:

1. To identify all regulatory requirements and applicable standards that have been developed, formalized, and codified into applicable laws, statutes, and rules that apply to proposed water quality improvement projects within 30 days of receiving a permit application.
2. To coordinate with permit applicants on proposed water quality improvement projects as part of the technical advisory committee process
3. To consider the development of internal technical advisory/evaluation committees within each authority to review proposed water quality improvement projects
4. To allow permit applicants to address all members of each authority's organization that are offering comments and concerns on a proposed water quality improvement project early on through the technical advisory committee process, instead of trying to go through one contact person at each authority.

2013-02 WD Project Eligibility under COE's Regional General Permits

THEREFORE, BE IT RESOLVED that MAWD supports amending the Corps' RGP-003-MN (permit) to include Watershed Districts within authorization category I of the regional general permit.

2013-03 Restoring Consistency and Predictability to WCA and the Clean Water Act Exempted or Authorized Activities

THEREFORE, BE IT RESOLVED that MAWD supports amending MN Statute Section 103E.2241, subd. 3 to set a date by which the Board of Water and Soil Resources, the commissioners of natural resources and agriculture, and the Pollution Control Agency must establish and approve the minimum state standards that address existing federal approvals under the Clean Water Act and Regional General Permits. Failure of the agencies to develop and approve the required state standards should result in the reinstatement of the Federal Approvals exemption as it existed prior to 2002.

2013-07 Amend Water Appropriation Law to Remove Water Quality Projects

THEREFORE, BE IT RESOLVED that MAWD supports legislation clarifying that a temporary diversion from a water of the state, by a public entity, for water quality treatment is not an "appropriation" that requires a permit or annual fee under MN Statues 103G.271.

BUFFER LAW and WETLAND CONSERVATION ACT

2015-04 Watershed District Input on MN DNR Buffer Protection Map

THEREFORE, BE IT RESOLVED that MAWD call for the MN DNR to offer opportunities for local government units to offer input on the creation of the buffer protection map.

2015-09 Proposed Changes to the 2015 Buffer Law

THEREFORE, BE IT RESOLVED that MAWD seek legislative changes in the 2015 Buffer Law that will provide incentives for our involvement and clarify and eliminate barriers and punitive measures in the present law.

2016-02 Correcting Watershed-Based Wetland Conservation Act Implementation

THEREFORE, BE IT RESOLVED that MAWD supports amendment to Statutes Section 103G.222, subdivision 5 to restore watershed-level resource management by allowing replacement of wetlands within either the bank service area or the major watershed of the impact.

WATER IMPAIRMENTS AND AQUATIC INVASIVE SPECIES

2017-02 Temporary Lake Quarantine Authorization to Control the Spread of Aquatic Invasive Species

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts supports legislation granting to watershed districts, independently or under DNR oversight, the authority, after public hearing and technical findings, to impose a public access quarantine, for a defined period of time in conjunction with determining and instituting an AIS management response to an infestation.

2017-04 Limited Liability for Certified Commercial Salt Applicators

THEREFORE, BE IT RESOLVED the Minnesota Association of Watershed Districts supports passage and enactment of state law that provides a limited liability exemption to commercial salt applicators and property owners using salt applicators who are certified through the established salt applicator certification program who follow best management practices.

2014-02 Common Carp Management, Research, and Removal

THEREFORE, BE IT RESOLVED that MAWD supports actions to require the DNR to allow common carp removal as part of an electrofishing program; and

BE IT FURTHER RESOLVED that MAWD supports actions to require the DNR to license and assign multiple commercial fishermen to commercial fishing area to ensure that watershed districts will have the ability to remove the carp as part of their management programs.

CLEAN WATER COUNCIL AND BWSR BOARD APPOINTMENTS

2015-07 Review Commitment to Clean Water Council Process for Recommendations to Governor and Legislature on Spending Priorities of the Clean Water Fund

THEREFORE, BE IT RESOLVED that MAWD undertake a review of our commitment to the present Clean Water Council funding recommendation process and make a recommendation to the membership at our 2016 Annual Meeting on our continued participation in that process.

2015-08 Protect the Integrity of the Clean Water Council Appointments

THEREFORE, BE IT RESOLVED that MAWD pursue legislation to protect the integrity of Clean Water Council appointments by supporting legislation similar to the BWSR appointment process for local government appointments, and

BE IT FURTHER RESOLVED that any state agency influence on the appointment process for local government representatives or any other specific represented groups on the Clean Water Council not be tolerated.

2014-05 Watershed District Appointments to BWSR

THEREFORE, BE IT RESOLVED that MAWD support and actively pursue rules, or legislation if necessary, that requires the governor to appoint BWSR representatives within 30 days of any occurring vacancy.

Activity Record for MAWD 2013-2017 Resolutions

2013 Resolutions/2014 Session		
1. Support Funding for Engineer Study on Floodwater Retention Pond ($500,000)	Lac qui Parle-Yellow Bank WD	Bill Introduced
2. WD Eligibility under COE's Regional General Permit	Rice Creek WD	Send letter
3. Restore Consistency and Prediciability to WCA & CWA Exempted Activities	Rice Creek WD	Work with BWSR
4. Consolidate Watershed Boundary Correction	Sauk River WD	Submit to statutory review process
5. Statutory Correction on WD Funds	Sauk River WD	Submit to statutory review process
6. Authorize WD manager participation in meetings via conference all/other electronic	Metro MAWD	MAWD working legislatively to allow this
7. Amend Water appropriation law to remove water quality projects	Minnehaha Creek WD	Passed in Environment Bill
8. Support Sales tax exemption for WDs	MAWD BOD	Passed in Taxes Bill

2014 Resolutions/2015 Session		
1. Repair of Flood Damage in the Prior Lake Outlet Channel	Prior Lake-Spring Lake WD	Passed in Bonding Bill
2. Common Carp Mangement, Research, and Removal	Prior Lake-Spring Lake WD	Met with DNR to discuss process & resolve.
3. Development, Adoption and Communication of MAWD Legislative Agenda	Capital Region WD	Done
4. Leasing Lands Purchased with State General Obligation Bonds	Bois de Sioux WD	Passed in bonding bill
5. Watershed District Appointments to BWSR	Bois de Sioux WD	No action

2015 Resolutions/2016 Session		
1. Encourage DNR to Permit Storing Water on DNR Land	Wild Rice WD	No action
2. Road Raises for Cities with Levees	Wild Rice WD	No action
3. Increase Manager's Per Diem	Wild Rice WD	No action
4. Watershed District Input on MN DNR Buffer Protection Map	Clearwater River WD	DNR worked with WDs and were part of process
5. Improvements in Process with Permitting Authorities for Water Quality Improvement Projects	Clearwater River WD	No action
6. Establishment of Minnesota River Basin Commission	Lower MN River WD	Legislative bills introduced & heard. Did not pass.
7. Review Commitment to Clean Water Council Recommendations	Board	Board adopted LGWR 1W1P funding recs
8. Protect the Integretary of Clean Water Council Appointments	Board	No action
9. Proposed Changes to the 2015 Buffer Law	Board	Legislation to clarify law was proposed & adopted

2016 Resolutions/2017 Session		
1. Making Human Resources Expertise Available to Districts through MAWD	Yellow Medicine River WD	No action
2. Correcting Watershed-Based Wetland Conservation Act Implementation	Rice Creek WD	Passed in Environment Finance Bill
3. Tax Treatment of Conservation Easements	Minnehaha Creek WD	No action
4. Watershed District Funds: Statutory Correction to Impose a Project Tax	Middle Fork Crow River WD	Passed in Taxes Committee, didn't make final 2018 omnibus bill
5. Amend MN Open Meeting Law to allow electronic WD manager meeting participation	Middle Fork Crow River WD	MAWD working administratively to fix this issue
6. Modify Levy authority for non-metro WDs/Increase levy authority	MAWD BOD	Language drafted
7. Appropriation for Buffer Enforcement for WD/Counties	MAWD BOD	Passed
8. Bonding Bill, Flood Hazard Mitigation	MAWD BOD	Passed

2017 Resolutions/2018 Session		
1. State Water Program Coordination & Integrations with Local Water Implementations	Capitol Region WD	Language passed by the legislature in omnibus bill, vetoed by Governor
2. Temporary Quarantine Authority to Control Spread of AIS	Confort Lake Forest Lake WD	No action
3. Support CRP in Federal Farm Bill	Comfort Lake Forest Lake WD	Letters sent to Senators Smith, Klobuchar
4. Support Legislation for limited liability protection for certified commercial salt applicators	Nine Mile Creek	Language in omnibus bill, but didn't make it to final version sent to Governor
5. Increase Middle Fork Crow River WD's General Fund Levy Limit	Middle Fork Crow River WD	No action
6. Stable Funding for Flood Damage Reduction	Two River WD	No action
7. Creation of Stormwater Reuse Task Force	MAWD BOD	WD involvement included as recommendation in final report

PLEASE NOTE: THIS IS NOT A COMPLETE LIST OF RECENT LEGISLATIVE EFFORTS. PLEASE REFER TO LEGISLATIVE UPDATES FOR THAT INFORMATION. THIS IS ONLY A VERY BRIEF TRACKING OF THE MOST RECENTLY ADOPTED RESOLUTIONS. PLEASE DON'T HESITATE TO CALL US WITH QUESTIONS. MAWD OFFICE - (612) 790-0700.

RESOLUTIONS

AS APPROVED BY MEMBERS

2017

Table of Contents

APPROVED MAWD RESOLUTION 2017-01
State Watershed Program Coordination with Local Watershed Implementation

WHEREAS Minnesota has a long history of water management by local government units; and

WHEREAS the Minnesota Legislature authorized the creation of watershed districts in 1955, through the Watershed Act, with the idea that water management policies should be developed on a watershed basis, because water does not follow political boundaries; and

WHEREAS the statutory purposes of watershed districts are to conserve the natural resources of the state by land use planning, flood control, and other conservation projects by using sound scientific principles for the protection of public health and welfare and the provident use of natural resources; and

WHEREAS the specific duties of Watershed Districts vary across the state -- some focus mainly on flood damage reduction, while others have a broad range of programs and services to protect and improve water quality; and

WHEREAS One Watershed, One Plan was developed by the Local Government Water Roundtable (Association of Minnesota Counties, and the Minnesota Associations of Watershed Districts and Soil and Water Conservation Districts) which recommended that local governments charged with water management responsibilities should organize and develop focused implementation plans on a watershed scale; and

WHEREAS the vision of One Watershed, One Plan is to align local water planning on major watershed boundaries with local strategies towards prioritized, targeted and measurable implementation plans; and

WHEREAS BWSR's vision for One Watershed, One Plan is that plans developed through this approach will address the need for focused watershed-based implementation plans that will be prioritized, targeted, and measurable; and

WHEREAS the MPCA is charged with the State adopted "watershed approach" to address the State's 81 "major" watersheds to develop Watershed Restoration and Protection Strategies (WRAPS); and

WHEREAS current implementation of the both the One Watershed, One Plan and the WRAPS program needs to be better integrated into local watershed implementation efforts; and Whereas, Clean Water Funds should not be expended on state efforts that duplicate or do not advance local watershed implementation; and

WHEREAS the Local Government Roundtable made recommendations in the 2016 Funding Work-group Policy Paper;

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts pursue legislation requiring state Clean Water Land and Legacy Funds for One Watershed, One Plan and the WRAPS programs to provide a direct linkage and alignment with each other as well as local watershed plan implementation; and

BE IT FURTHER RESOLVED that the Minnesota Association of Watershed Districts pursue legislation to codify the Watershed Implementation Partnership funding recommendations from the Local Government Roundtable, 2016 Funding Workgroup Policy Paper; and

BE IT FURTHER RESOLVED that Clean Water Land and Legacy funds for One Watershed, One Plan and the WRAPS programs do not duplicate local efforts and are focused towards local watershed implementation.

APPROVED MAWD RESOLUTION 2017-02
Temporary Lake Quarantine Authorization to Control the Spread of Aquatic Invasive Species

WHEREAS Aquatic Invasive Species (AIS), including invasive plants, fish and invertebrates, continue to spread throughout Minnesota lakes, with the Minnesota Department of Natural Resources (DNR) reporting many new infestations in 2017;

WHEREAS the movement of a newly identified AIS infestation into or out of a lake may be assisted by boat transfer that occurs before measures to limit that movement can be decided or implemented;

WHEREAS a temporary quarantine can prevent the movement of newly identified AIS species into or out of a lake while measures to respond to the infestation can be decided and implemented;

WHEREAS while in several instances temporary public access quarantines have been applied in conjunction with AIS treatment measures, the authority for quarantines is not explicit in state statute;

WHEREAS all parties affected by a potential quarantine would benefit from a more formal and structured process of deciding on and instituting the quarantine;

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts supports legislation granting to watershed districts, independently or under DNR oversight, the authority, after public hearing and technical findings, to impose a public access quarantine, for a defined period of time in conjunction with determining and instituting an AIS management response to an infestation.

APPROVED MAWD RESOLUTION 2017-03
Conservation Reserve Program (CRP) Support in the 2018 Federal Farm Bill

WHEREAS Congress presently is preparing the 2018 federal Farm Bill, which will contain a conservation title with appropriations for federal conservation programs for agricultural lands including the Conservation Reserve Program (CRP);

WHEREAS the State of Minnesota has been a leader in developing and implementing approaches that maintain agricultural productivity while integrating conservation practices for water quality and habitat benefit, and has shown its commitment through its constitutional mandate for conservation spending and other state and local appropriations for water quality and habitat purposes;

WHEREAS the CRP is a principal federal/state conservation program for agricultural lands but enrollments are presently at the federal acreage cap;

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts supports a strong CRP element in the Farm Bill conservation title, including but not limited to CRP reauthorization with an increased acreage cap, maintenance of continuous signup for high value environmental practices such as buffers and wetland restoration, maintenance or expansion of the grasslands program, and removal of restrictions on incorporation of drainage water quality management practices, while maintaining other successful federal conservation programs for agricultural lands such as EQIP and CSP;

BE IT FURTHER RESOLVED that MAWD will coordinate with the Minnesota Board of Water and Soil Resources, Minnesota Department of Agriculture and others to advocate to and work with the State's Congressional delegation and other federal representatives to achieve this policy goal.

APPROVED MAWD RESOLUTION 2017-04
Limited Liability for Certified Commercial Salt Applicators

WHEREAS chloride contamination of water resources has been found in urban areas around the state;

WHEREAS the Minnesota Pollution Control Agency has listed 39 waterbodies in the Twin Cities metro area as impaired for chloride and has completed Total Maximum Daily Load studies on Nine Mile Creek and Shingle Creek and is currently developing TMDLs for the remaining impaired waterbodies through a metro-wide TMDL study; and

WHEREAS the TMDL studies have indicated that the largest chloride source to our lakes and streams is through the application of chloride compounds on roads, parking lots, sidewalks and other hard surfaces for winter maintenance practices; and

WHEREAS liability for property damage or personal injury as a result of snow or ice is one of the main reasons over-salting occurs and many private commercial contractors and property owners are reluctant to implement salt-reduction practices for fear of increased liability; and

WHEREAS the MPCA currently oversees a voluntary Smart Salting Certification Program that provides training to public and commercial salt applicators, private property owners and managers and others on how to maintain safe surfaces using salt efficiently;

THEREFORE, BE IT RESOLVED the Minnesota Association of Watershed Districts supports passage and enactment of state law that provides a limited liability exemption to commercial salt applicators and property owners using salt applicators who are certified through the established salt applicator certification program who follow best management practices.

APPROVED MAWD RESOLUTION 2017-05
General Fund Levy Cap Increase for the Middle Fork Crow River Watershed District

WHEREAS Minnesota statutes section 103D.905, subd. 3, provides that a watershed district's general fund: may not exceed 0.048 percent of estimated market value, or $250,000, whichever is less; and

WHEREAS Middle Fork Crow River Watershed District is completing its participation in the North Fork Crow River Watershed One Watershed One Plan planning process. The outcome of this process will be a One Watershed Plan that will require local participants to commit to funding projects identified within the plan within their jurisdictional boundaries. Such funding is practically impossible for the Middle Fork Crow River Watershed District under the current, general fund levy limit; and

WHEREAS Removing the $250,000 levy cap and allowing the levy to be limited by the 0.048 percent of estimated market value cap, will give Middle Fork Crow River Watershed District the flexibility to meet is basic operating budget while also giving it means to allocate general fund dollars to complete projects identified in its current watershed management plan and those identified in the draft One Watershed Plan within the Middle Fork Crow River Watershed planning area.

THEREFORE, BE IT RESOLVED the Minnesota Association of Watershed Districts support the efforts of Middle Fork Crow River Watershed District to draft and advance special legislation affecting a change in its general fund levy cap.

APPROVED MAWD RESOLUTION 2017-06
Stable Funding for the Flood Damage Reduction Program

WHEREAS severe flooding is known to occur repeatedly within the Red River Valley and within the State of Minnesota, and

WHEREAS each flood event costs the public millions of dollars to repair and replace infrastructure that is damaged by flooding, and

WHEREAS FEMA and MN HSEM provide resources to repair infrastructure following a flood, however very limited resources are available for prevention of flooding, and

WHEREAS the DNR Flood Damage Reduction grant program has been a successful tool for local governments to utilize to design and build projects to reduce and prevent flooding, and

WHEREAS the DNR FDR program is severely underfunded.

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts support requesting the MN Legislature provide stable funding for the DNR FDR program. A suggested sustainable level of funding is $25 million per year for the next 10 years.

APPROVED MAWD RESOLUTION 2017-07
Creation of a Stormwater Reuse Task Force

WHEREAS Stormwater Reuse Best Management Practices (BMP's) have been documented to provide multiple watershed management benefits including conservation of groundwater supplies, protection of water quality, and reduction of flood risks; and

WHEREAS the Minnesota Association of Watershed Districts (MAWD) provided an informational document to the Interagency Workgroup on Water Reuse in June 2017 documenting the considerable watershed management benefits of Stormwater Reuse BMP's; and

WHEREAS the Interagency Workgroup on Water Reuse has drafted a report titled "Advancing Safe and Sustainable Water Reuse in Minnesota- 2017 Report of the Interagency Workgroup on Water Reuse" (Water Reuse Report) with the primary charge of the Report being "to prepare a comprehensive study of and recommendations for regulatory and non-regulatory approaches to water reuse for use in the development of state policy for water reuse in Minnesota"; and

WHEREAS MAWD /Watershed Districts were not represented on the Interagency Workgroup on Water Reuse despite frequent requests to be included throughout the process of developing the Water Reuse Report; and

WHEREAS MAWD provided written comments on the Water Reuse Report which stated that it will be essential for MAWD / Watershed Districts to be involved on the Interagency Workgroup on Water Reuse as it moves forward with implementing the recommendations outlined in the Water Reuse Report; and

WHEREAS Watershed Districts and their local city and county partners have decades of experience in assessing the "on the ground" benefits, challenges, and risks associated with stormwater reuse BMP's;

THEREFORE, BE IT RESOLVED that the Minnesota Association of Watershed Districts pursue legislation requiring creation of a Stormwater Reuse Task Force with membership from Watershed Districts, Cities, Counties, State Agencies and other Stormwater Reuse implementers; and

BE IT FURTHER RESOLVED that the Stormwater Reuse Task Force should be charged with developing recommendations that further clarify and/or replace the information in the Water Reuse Report that relates to Stormwater Reuse BMP's.

LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. H. LMRWD Projects

Prepared By
Linda Loomis, Administrator

Summary

i. **Eden Prairie Area #3 Stabilization**
No new information since last update

ii. **Riley Creek Cooperative Project with Riley/Purgatory/Bluff Creek WD**
Staff is working with Riley/Purgatory/Bluff Creek Watershed District to draft a cooperative agreement. Once agreement has been drafted and approved by legal counsel, it will come before the Board for approval.

iii. **Seminary Fen ravine stabilization project**
We are awaiting the second half of the grant payment from BWSR for this project.

iv. **Analysis of Dakota County Monitoring**
This project was submitted as a project under the Metro-area Watershed Based Funding Program. Staff will begin drafting a work plan for this project and then send it to the MN DNR for review, BWSR was concerned that LMRWD would not be able to use its entire allocation under the Program, so they suggested that the Dakota SWCD act as the fiscal agent for the project. That way if the money cannot be completely used by the LMRWD, the Dakota SWCD would be able to use the money for another project.

Staff will begin preparing a work plan. The work plan will be sent to the DNR for review before being submitted to BWSR.

v. **East Chaska Creek - CSAH 61 & TH 41 Transportation improvements**
Staff was hopeful that the city of Chaska would be willing to allow for a regional water treatment facility to be constructed on city-owner land identified for this purpose in the LMRWD's East Chaska Creek feasibility study. However, it appears the city did not want to do this, since the development was approved. The city approved development of the site for a business called Formacoat. Formacoat will be required to manage stormwater from the property, but they will not do more that what they are required to do.

The bank stabilization identified in the feasibility study was submitted to BWSR under the Metro-area Watershed Based Funding Program. Staff will begin preparation of the work plan for the project. The feasibility report is attached for Manager's reference.

Attachments
East Chaska Creek Feasibility study

Recommended Action
No action recommended

East Chaska Creek Restoration Project

Lower Minnesota River Watershed District & the City of Chaska

East Chaska Creek Restoration Project
Project No. 86550

February 2016

East Chaska Creek Restoration Project

Prepared for

Lower Minnesota River Watershed District &
the City of Chaska
East Chaska Creek Restoration Project
Chaska, MN

Project No. 86550

February 2016

Prepared by

Burns & McDonnell Engineering Company, Inc.
Bloomington, MN

TABLE OF CONTENTS

Page No.

LIST OF TABLES

Page No.

1.0 BACKGROUND INFORMATION

1.1 Introduction

The East Chaska Creek (Creek) Restoration Project (Project) is located in the City of Chaska within the Lower Minnesota Watershed District. In January 2014, the Strategic Resources Evaluation (SRE) identified East Chaska Creek as a necessary project. The SRE states that the Creek needs attention to prevent further erosion. The SRE designated the Creek as a "Category 2 Stream Feasibility Study" (Feasibility Study) which recommends several channel erosion countermeasures from Engler Street to Courthouse Lake Trail. Figure 1 in Appendix A shows an overview map of the Project area.

The SRE divided the Project into six segments (Reaches A, B, C, D, E, and F) and, when presented to the Technical Advisory Committee (TAC) in July 2015, it was agreed that the work for each segment should be combined. In addition, the Project has been added to the District's 3rd Generation Management Plan (Plan) in Table 4-4, "Capital Improvement Projects," as part of the 2015 Plan amendment.

At the June 17, 2015, Lower Minnesota River Watershed District (District) Board of Managers regular meeting, Managers approved a cost share agreement with the City of Chaska (City) for Task 1 of the East Chaska Creek Restoration Project. Task 1 includes data collection and review, refining priority sites and reaches, recommending channel stabilization improvements, and developing conceptual cost estimates. Burns & McDonnell Engineering Company (Burns & McDonnell) was selected to complete Task 1.

1.2 Objectives

The objectives of this report are to:

1. Identify channel maintenance activities.
2. Prioritize channel stabilization projects and provide conceptual design and cost estimates.
3. Identify other potential capital projects and studies.

1.3 Watershed Land Use

According to Carver County staff, the East Chaska Creek watershed covers approximately 9,841 acres of Carver County, including the eastern portion of the City of Chaska. In 2005, the dominant land uses in the watershed were natural areas at 37 percent and developed land at 31 percent of the total watershed area. The 2020 projected land use shows large increases in developed land (to 47 percent), with natural areas decreasing to 23 percent.

1.4 History of East Chaska Creek

The history of East Chaska Creek is important to address as it gives context for the decisions the City and District will make to implement the various maintenance activities, stabilization projects, and capital projects recommended later in this report. East Chaska Creek is unique relative to other streams in the region as (1) the channel within the Project area is likely completely manmade and (2) flow through the channel within the project area is controlled by an upstream diversion structure (See Appendix A, Figure 1).

Interviews with the City Engineer, examination of historic plat maps (Appendix A, Figure 2), and earliest available aerial photography (Appendix A, Figure 3) of the project area indicate that the channel was constructed at some point between 1851 and 1937, potentially to support clay mining and brickmaking operations. Field visits conducted for this study show evidence of the use of clay bricks to stabilize the channel banks in some reaches of the Creek.

To protect the City from Minnesota River flooding, the U.S. Army Corps of Engineers (USACE) began construction of a levee around the riverward side of the City in 1992. The East Chaska Creek channel passes through the levee at Courthouse Lake Trail through an 84-inch reinforced concrete pipe (RCP), and flow is controlled with a gate (Figure 1). To mitigate the potential for internal flooding from East Chaska Creek during river flood fighting and to alleviate regular flooding of downtown Chaska, a diversion channel and control structure were also constructed east of the intersection of Kelly and North Valley Roads (Appendix A, Figure 1) to route flow from upstream around the City directly to the Minnesota River. Construction of the levee and diversion channel were completed in 1998.

2.0 PREVIOUS ASSESSMENTS

2.1 MPCA Water Quality Assessment

The Minnesota Pollution Control Agency (MPCA) has identified and listed the Creek as an "impaired water." According to the MPCA, "impaired waters" are those waters that do not meet State water quality standards for one or more pollutants; thus, they are "impaired" for their designated uses. Table 1 summarizes the MPCA listed impairments on the Creek. These impairments are based on MPCA assessments of water quality monitoring data collected by Carver County at the monitoring locations indicated in Appendix A, Figure 1.

Table 5-1: East Chaska Creek Water Quality Impairments[1]

Beneficial Use	Assessment Year	Impairment Cause
Aquatic life	2009	Fish bio-assessments
		Turbidity
Aquatic recreation	2007	Fecal coliform

2.2 Strategic Resources Evaluation

A Feasibility Study for East Chaska Creek was performed by HDR, Inc. (HDR) as part of the District's SRE in 2012 (Appendix B). The Creek was one of four streams selected to determine potential best management practices (BMPs) to mitigate sources of erosion, thereby reducing turbidity in the streams within the District. HDR noted reaches of the stream that were actively eroding or had outside bend erosion during a field visit conducted on August 28, 2012. HDR recommended that debris and dead trees from the channel be removed and that localized problems at outfalls and crossings be addressed with grade control structures and bank stabilization measures.

[1] "Maps of Minnesota's impaired waters and TMDLs," Minnesota Pollution Control Agency, accessed October 14, 2015

3.0 CHANNEL ASSESSMENT SUMMARY

Burns & McDonnell conducted day-long field visits on two different days, August 26 and September 14, 2015, to visually assess the Creek and to determine initial improvement alternatives. Two cross sections were also surveyed immediately downstream and approximately 750 feet downstream of the Crosstown Boulevard bridge crossing to estimate bottom width, side slope, and bed slope. Overall, our assessment indicated that while the Creek has visible signs of previous bank and bed erosion, the stream was not actively eroding to the degree indicated in the HDR report or that is typically observed in urbanizing streams. In general, no active signs of bank erosion, such as exposed orange roots, were observed along the banks, and vegetation had begun to establish itself on point bars. This is likely because much of the channel forming flow that historically passed through the Creek is now being directed to the USACE diversion channel.

The field assessment did indicate the need to perform some channel maintenance and stabilization activities as a means to (1) mitigate sources of localized erosion at outfalls and debris jams and (2) prevent potential future damage to existing infrastructure. The assessment also identified other potential capital projects and studies the City and District may undertake to address MPCA water quality impairments on the Creek and sediment transport to the Minnesota River.

4.0 RECOMMENDED ACTIONS

Burns & McDonnell recommends the following actions, categorized into the following activities: (1) Maintenance, (2) Channel Stabilization Projects and (3) Other Potential Capital Projects and Studies. These three actions are discussed in the following sections.

4.1 Maintenance Activities

The following maintenance activities are recommended for the City to undertake. Since these activities will be undertaken by City staff, no cost estimates were prepared. Figure 4 (Appendix A) shows the locations of these activities, and Appendix C contains photographs of each location (Photographs A1 – A15). In general, these maintenance activities include:

- Removal of debris to maintain the channel capacity and to prevent larger debris jams at road crossings.
- Point repair of stormwater outfalls with riprap to prevent future erosion and to protect outfalls.
- Removal of consolidated sediment at most downstream area near the levee and reseeding of the area to stabilize the lower end of the stream.

These maintenance activities should be done as soon as possible to prevent more costly future improvement caused by lack of maintenance. The lower end of the Creek should be checked routinely for signs of sedimentation upstream of the 84-inch RCP through the levee. Following any flood fighting activities, the sediment and debris removed from the creek should be hauled away from the site and the overbanks reseeded.

4.2 Channel Stabilization Projects

The following channel stabilization projects are recommended primarily to protect City infrastructure and secondarily to reduce future Creek bank and bed erosion. Figures 5 and 6 (Appendix A) show the locations of these activities, and Appendix C contains photographs of each location. Appendix D contains cross section survey information.

4.2.1 Repair Scour Hole Downstream of Crosstown Boulevard Bridge

This recommended creek improvement consists of repairing the scour hole downstream of Crosstown Boulevard Bridge; the scour hole has been caused by the creek downcutting to this point (Appendix A, Figure 5). The scour hole is approximately 30 feet wide, 10 feet long, and 3 feet deep (Photographs B1 – B9). Repair would consist of salvaging existing riprap, re-grading the channel downstream of the structure apron, and re-installing filter fabric and riprap.

4.2.2 Install Bank Armoring, Toe Protection, and Grade Control Structure behind Lenzen Chevrolet

This project consists of repairing bank erosion which threatens the City's paved trail as well as two large cottonwood trees behind Lenzen Chevrolet (Appendix A, Figure 5). The channel through this reach is approximately 6 to 7 feet deep. Two temporary asphalt repairs have been implemented in this location, but the repairs have subsequently failed (Photographs B10 – B14). A grade control structure would also be installed to prevent potential channel downcutting upstream to Crosstown Boulevard. Repairs would consist of removal of temporary asphalt repairs, complete bank hard armoring for approximately 320 linear feet along the left bank, toe protection for approximately 340 linear feet on the left and right banks, and a grade control structure.

4.2.3 Install Toe Protection on Right Bank East of Oak Street

This project consists of installing toe protection for approximately 120 linear feet on the right bank of the channel east of Oak Street (Appendix A, Figure 6). There are houses located in close proximity to this outside bend, and the houses could potentially be threatened if the bank continues to erode (Photograph B15).

4.2.4 Cost Estimate

A rough, planning-level cost estimate was developed for the recommended channel stabilization projects and is summarized in Appendix E. For cost estimation purposes, Burns & McDonnell has assumed that (1) the projects will be implemented simultaneously, 2) toe protection will consist of rock or riprap revetment, and (3) and the grade control structure will consist of a rock weir. Costs could be reduced if salvaged woody debris collected from maintenance activities were used in place of riprap toe protection. The cost to implement the recommended channel stabilization projects totals approximately $168,500.

4.3 Other Potential Capital Projects and Studies

Burns and McDonnell has identified other potential capital projects and studies for the District and City to consider to:

1. Address the various impairments on the Creek.
2. Mitigate sediment transport to the Minnesota River.

Figure 7 (Appendix A) shows the location of these potential capital projects, and Appendix C shows photographs of each location.

4.3.1 Constructed Wetland along Chaska Boulevard

There is a potential site to construct a treatment wetland south of the Creek within two vacant lots along Chaska Boulevard. Currently, the majority of the lots are paved right up to the edge of the Creek bank (Photographs C1 – C3). As shown in Figure 7 (Appendix A), flow could be diverted from the Creek channel into a wetland system to provide for sediment removal, flood storage, and bacteria treatment. The channel bottom adjacent to the vacant lots is approximately 5 feet deep from the top of the pavement, making flow diversion easy to accomplish and minimizing the amount of excavated material. Potential pitfalls would be soil conditions beneath the existing paved lots and the potential for contaminated soils. The feasibility of a wetland bank could also be explored. The existing trail system to the north could be tied into the wetland, enhancing the trail system and providing a public education opportunity. In addition, the remaining frontage portion of the lots could be resold as higher valued parcels for future redeveloping, helping offset the cost of the project.

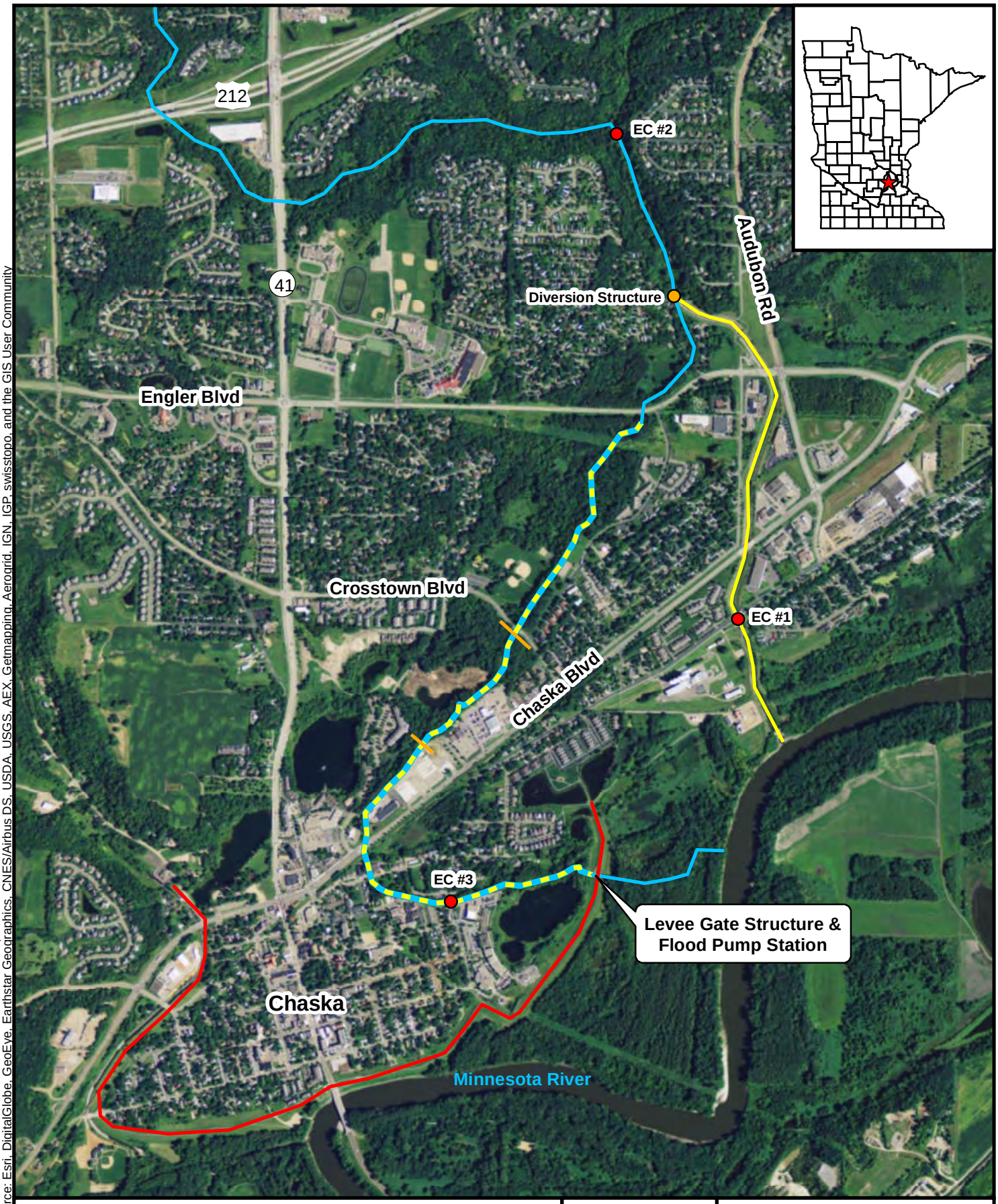
4.3.2 Settling Basin Upstream of Creek Levee Crossing

Field visits to this location indicate prior sedimentation and excavation during Minnesota River flood fighting (Photographs C4 – C6). Constructing a baffled settling basin in this location would allow for efficient trapping of sediment prior to build up at the levee and easier removal of sediment after internal flooding. Constructing a designed settling basin would reduce sediment to the Minnesota River, provide easier maintenance, and improve the efficiency of the flood pump inflow.

4.3.3 Sanitary / Septic Connection Source Identification

White foam was also observed in a few locations throughout the reach during the field visit on September 14, 2015 (Photographs C7 – C9). These observations coupled with dry weather the preceding 4 days and the MPCA bacteria impairment indicate a potential anthropogenic source (sanitary or septic connection). The District, in cooperation with Carver County and the City of Chaska, could explore the possibility of identifying the flow connection to the Creek from sanitary sources or septic systems that are adversely impairing water quality in the Creek.

APPENDIX A - FIGURES



NORTH

0 750 1,500 Feet

Scale: 1 Inch = 1,500 Feet

Legend

- Project Area
- CCWMO Monitoring Location
- Diversion Structure
- East Chaska Creek
- Diversion Channel
- Levee
- Surveyed Cross Section

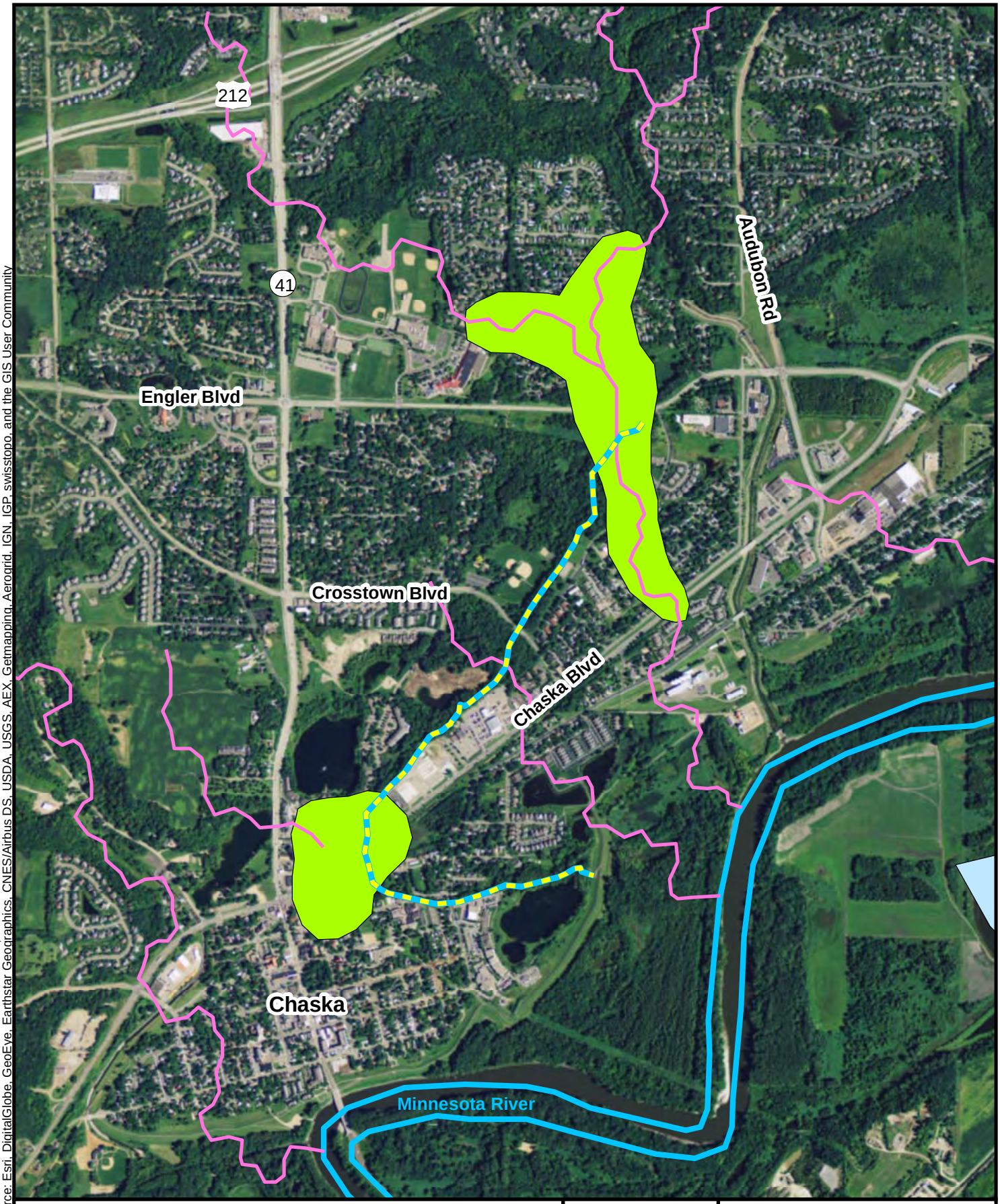
BURNS McDONNELL

Figure 1
Project Overview Map

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/16/2015



NORTH

0 750 1,500 Feet

Scale: 1 Inch = 1,500 Feet

Legend

Project Area

1855 Historical Data:

- Stream
- River
- Wetland
- Lake

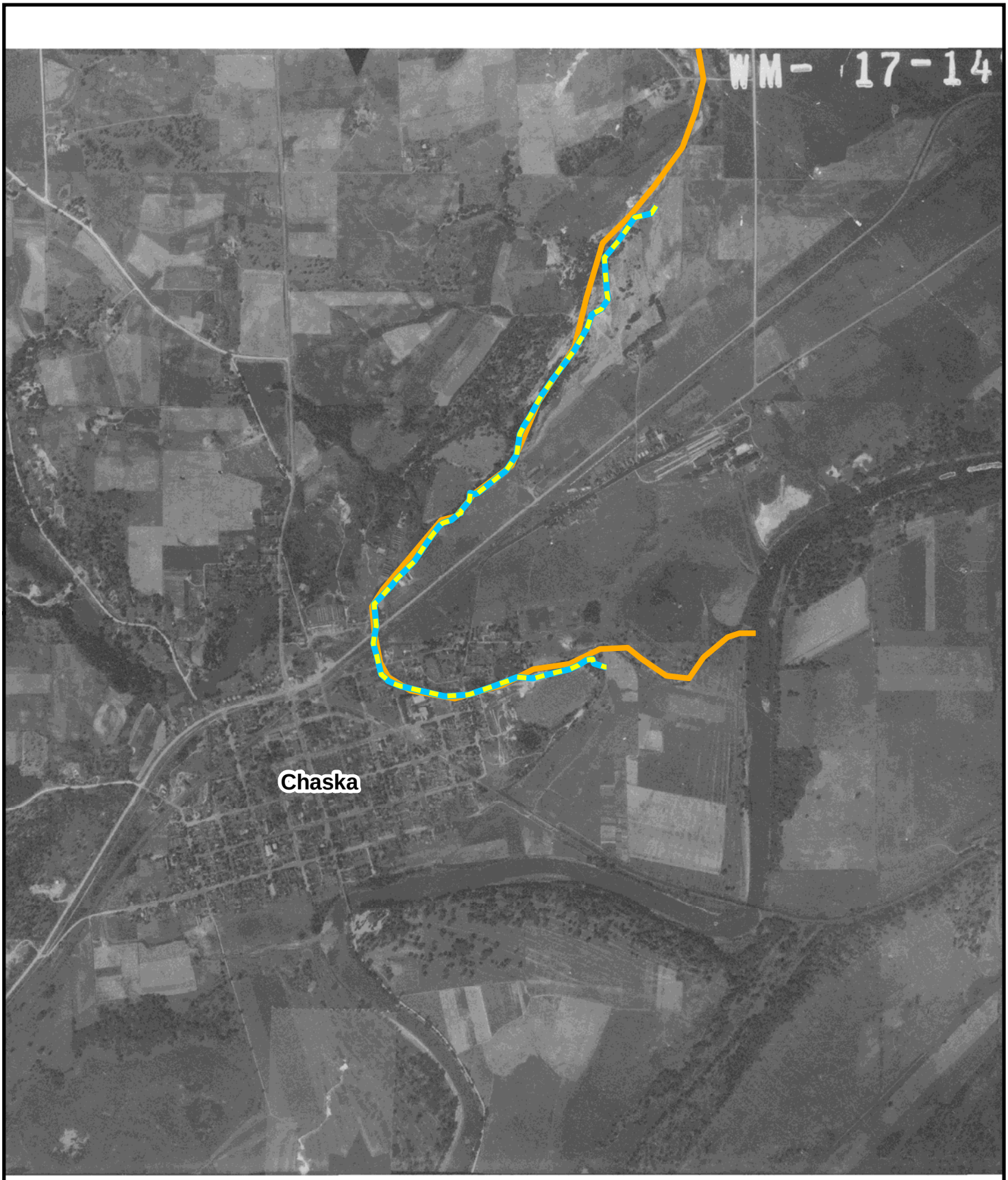
BURNS McDONNELL

Figure 2
1855 Waterbodies Map

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/16/2015



NORTH

0 750 1,500 Feet

Scale: 1 Inch = 1,500 Feet

Legend

- Project Area
- Approximate Location of East Chaska Creek in 1937

BURNS McDONNELL

Figure 3
1937 Aerial Map

East Chaska Creek Project
Chaska, Minnesota

Source: University of Minnesota and Burns & McDonnell

Issued: 10/16/2015

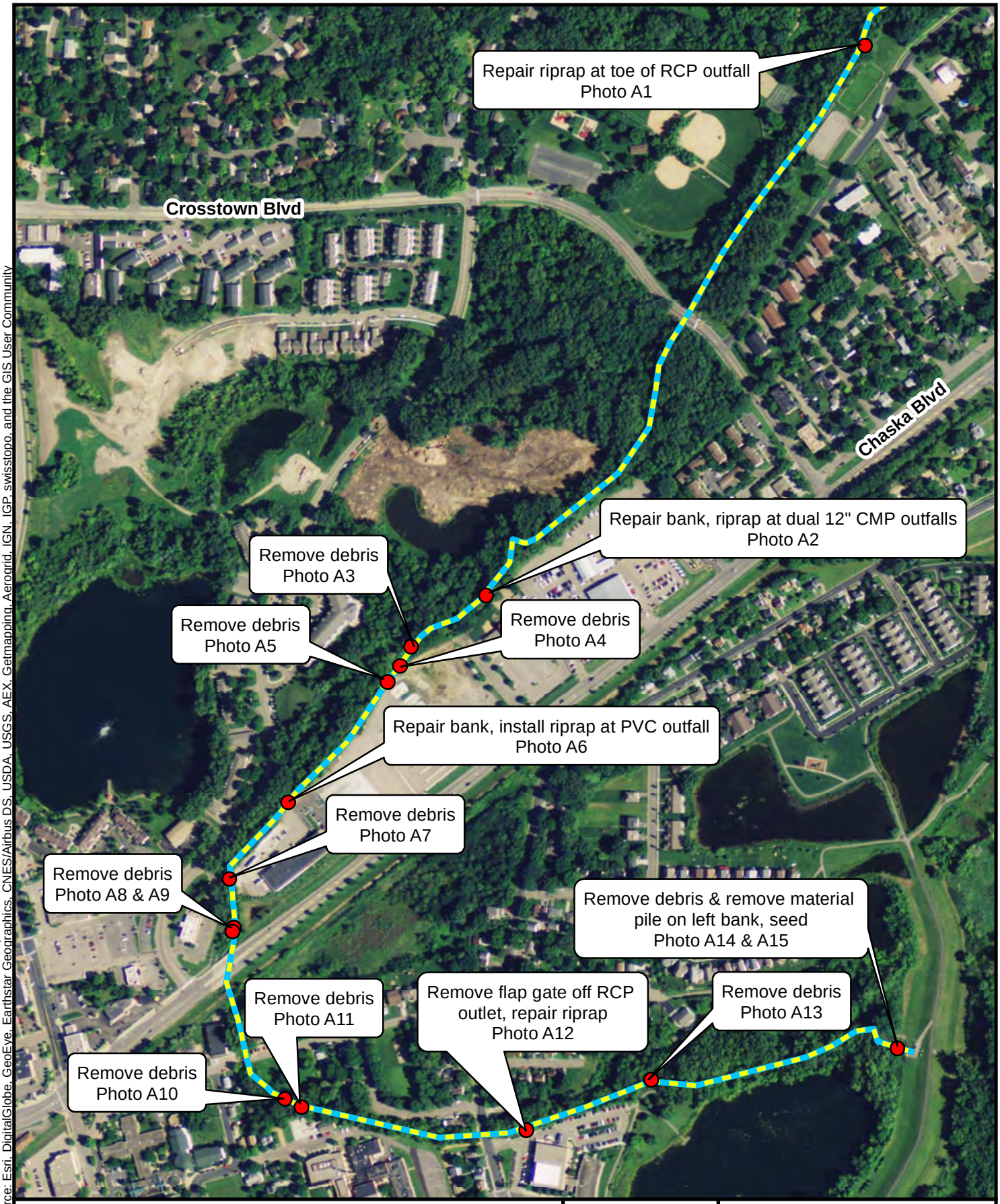
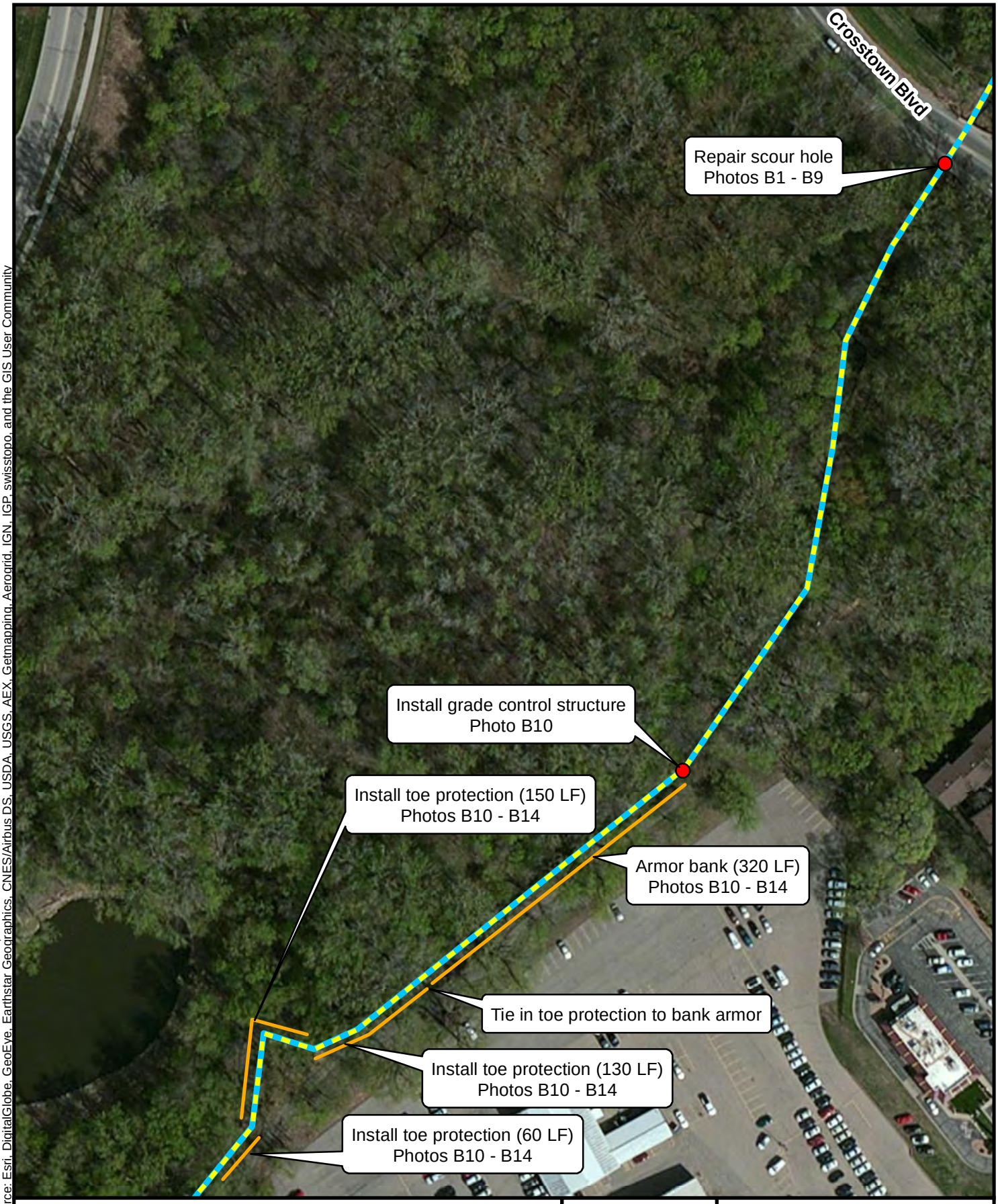


Figure 4
Recommended Maintainence Activities

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/12/2015



NORTH

0 60 120 Feet

Scale: 1 Inch = 120 Feet

Legend

- Project Area
- Recommended Channel Stabilization Project (Stream Bank)
- Recommended Channel Stabilization Project (Single Location)

BURNS McDONNELL

Figure 5
Recommended Channel Stabilization Projects

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/12/2015

NORTH

0 60 120 Feet

Scale: 1 Inch = 120 Feet

Legend

- Project Area
- Recommended Channel Stabilization Project (Stream Bank)
- Recommended Channel Stabilization Project (Single Location)

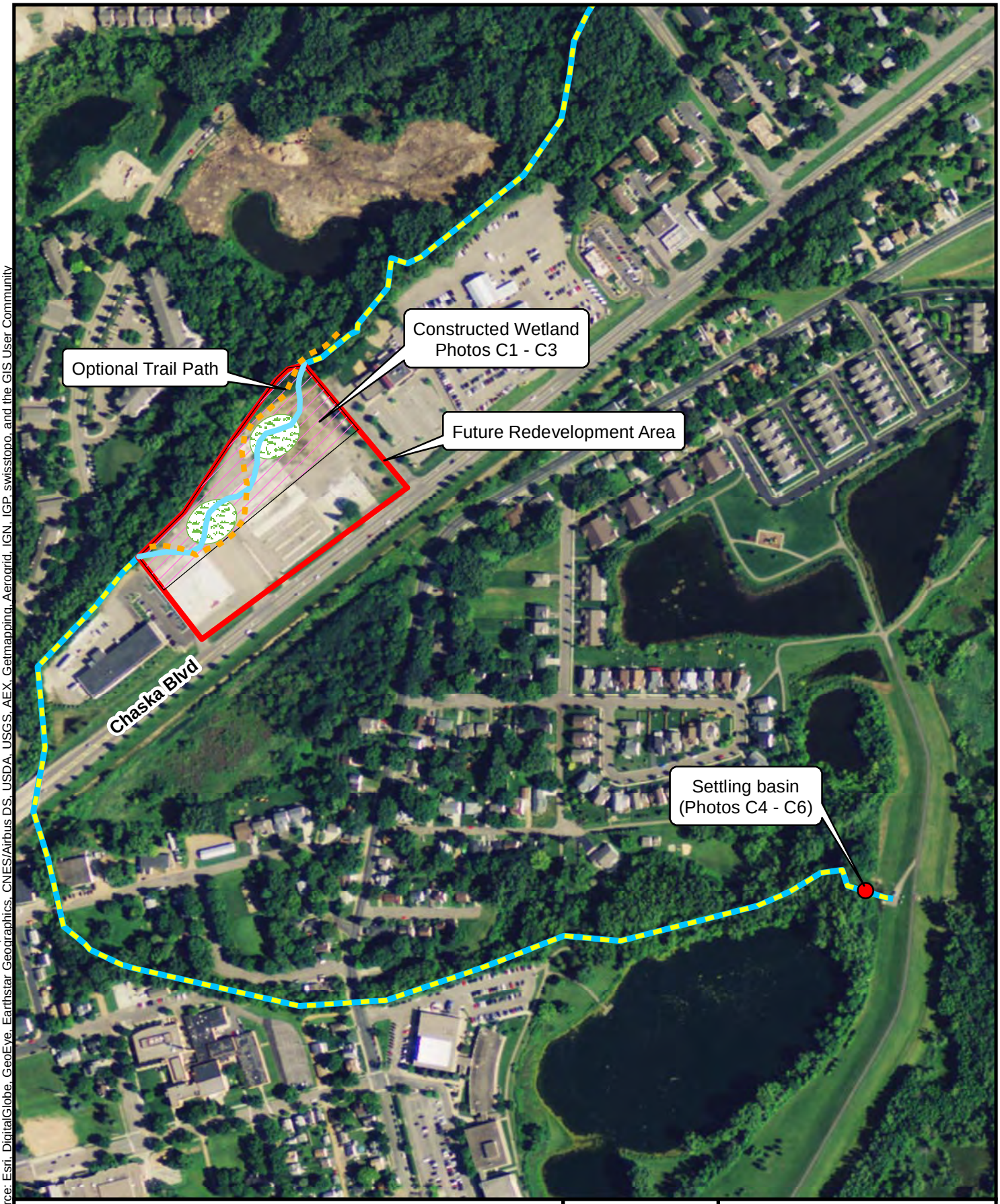
BURNS McDONNELL

Figure 6
Recommended Channel Stabilization Projects

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/12/2015



NORTH

0 200 400 Feet

Scale: 1 Inch = 400 Feet

Legend

- Project Area
- Other Potential Capital Projects (Constructed Wetland)
- Other Potential Capital Projects (Settling Basin)

BURNS McDONNELL

Figure 7
Other Potential Capital Projects

East Chaska Creek Project
Chaska, Minnesota

Source: Burns & McDonnell

Issued: 10/16/2015

APPENDIX B - STRATEGIC RESOURCES EVALUATION

Appendix E – CATEGORY 2 STREAM FEASIBILITY STUDY

Contents

Feasibility Study for Category 2 Streams

Four streams in the Lower Minnesota River Watershed District (District) are on the 2012 303(d) as being impaired for turbidity (Bluff Creek, Riley Creek, Carver Creek, and East Chaska Creek; see **Error! Reference source not found.**, Figure 2, Figure 3. East Chaska Creek Priority Sites and Reaches, below. These streams were selected for a feasibility study to determine potential best management practices (BMPs) to mitigate sources of erosion, thereby reducing turbidity in the streams in areas within the District. This feasibility study also provides costs for the BMPs.

An initial desktop analysis of the streams consisted of examining aerial photos, geographic information system (GIS), and the District gully inventory (Appendix H in the District's Third Generation Plan). Adequate visual detail for BMP recommendation was not possible using only a desktop analysis, so a field reconnaissance trip to these streams took place August 28th, 2012, to examine erosion areas in greater detail. The following sections describe each of the four stream visits, present suggested BMPs to address erosion problem areas, and provide costs associated with implementation.

Bluff Creek

Bluff Creek (Figure 2) is in Chanhassen near the intersection of County Road 61 (Flying Cloud Drive) and County Road 101 (Great Plains Boulevard). The District section of the creek begins at the southern edge of Bluff Creek Park, emerging from a tunnel underneath a gravel bike trail. A Watershed Outlet Monitoring Program (WOMP) monitoring station, operated by the Metropolitan Council Environmental Services (MCES), is on Bluff Creek at North Highway 101 (Flying Cloud Drive). Streambank erosion was observed below the tunnel exit (Photo 1). Active erosion was observed at the bridge abutments approximately 100 feet downstream at the North Hwy 101 crossing. Active erosion was observed on outer stream bends, where near vertical banks exist. However, the overall channel seemed stable. In sum, excessive active erosion was not observed in Bluff Creek.

Suggested actions for Bluff Creek include providing an energy dissipation structure at the tunnel exit, bank stabilization measures along outside creek bends, re-directing runoff coming off of the North Hwy 101 Bridge, and stabilizing the areas around the bridge abutments.

Riley Creek

Riley Creek (Figure 2) is in Eden Prairie near the intersection of County Road 61 (Flying Cloud Drive and County Road 4 (Spring Road). The District section of the creek begins at Flying Cloud Drive near the Riley Creek WOMP monitoring station. The creek travels 1.3 miles from there to the Minnesota River, passing through Grass Lake. This study examined the reach immediately below the WOMP station.

Streambank erosion was observed at the concrete apron near the WOMP station (Photo 2. Riley Creek WOMP station downstream of Flying Cloud Drive (Eden Prairie)

). Erosion was particularly evident at outside bends where undercut banks and exposed tree roots were observed. The right bank wingwall was also noticed to be broken from the apron structure. In sum, excessive active erosion was not observed in Riley Creek near the WOMP station.
Suggested actions for Riley Creek include providing energy dissipation structures below County Road 61 and/or redirecting flows away from outside creek meanders to prevent future erosion during runoff events.

Carver Creek

Carver Creek (
Figure 2) is in Carver south of County Road 40 (Main Street W) near downtown Carver. The District section of the creek begins near a trail crossing approximately 1,000 feet above the confluence with the Minnesota River.
The meandering creek had near vertical banks at outer creek bends showing active erosion (bank sloughing). However, the channel banks seem to be held in place by debris jams and not mobilizing downstream (**Error! Reference source not found.**). Approximately 150 feet upstream of the trail crossing there was active gully erosion depositing sediment into the channel (**Error! Reference source not found.**). Further upstream there was similar outer creek bend erosion but debris jams were absent (**Error! Reference source not found.**). In sum, active erosion was observed in Riley Creek at several locations.
Suggested actions for Carver Creek include stabilizing outer bends with toe protection and grading banks to a more stable slope, and stabilizing the gully to prevent future sediment from being transported downstream.

East Chaska Creek

East Chaska Creek (

Figure 3. East Chaska Creek Priority Sites and Reaches

) is in downtown Chaska. The District section of the creek begins below County Road 10 (Engler Boulevard) and continues downstream to the confluence with the Minnesota River. For assessment, the creek was divided into five reaches, A through E, starting from the upstream most point within the District. Recommendations for the different reaches are presented in the text .

Reach A: Engler Boulevard to Crosstown Boulevard

Reach A was heavily vegetated, had some coarse sediment in the channel bed, and as generally stable. There was some localized erosion caused by debris jams in the channel (
*). The culvert outfall at Engler Boulevard was relatively stable, with energy dissipation provided by riprap (**Error! Reference source not found.**). Suggestions for Reach A include removal of channel debris and dead trees.*

Reach B – Crosstown Boulevard to County Road 61

In this stream section, the entire reach was downcut approximately two feet, which was especially evident at the downstream apron at the Crosstown Blvd bridge. There was little to no coarse sediment in channel, consisting mainly of silty sands. The left bank (approximately six feet high, vertical) was problematic, with the majority of the reach having actively eroding banks. The worst area was approximately 720 feet long, beginning at 902 Yellow Brick Road.

*Right bank erosional problems were generally confined to outfall locations (one buried outfall and two hanging outfalls). Outfall A (**Error! Reference source not found.**) consisted of a 24-to-30-inch RCP with apron, and was nearly buried. There was a log jam immediately downstream with eroding stream banks. Sediment was accumulating upstream of the outfall,with the right bank sloughing into channel. Outfall B (**Error! Reference source not found.**) is a 12-inch PVC pipe hanging 2.5 feet above the channel bed. Outfall C (**Error! Reference source not found.**) is a 12-inch CMP hanging six inches above the channel bed.*

At the pedestrian bridge (

Figure 3. East Chaska Creek Priority Sites and Reaches

*, **Error! Reference source not found.**) there was active erosion present, but the upstream reach appeared relatively stable. Near the Crosstown Boulevard Bridge (*

Figure 3. East Chaska Creek Priority Sites and Reaches

*, **Error! Reference source not found.**) the downstream apron channel was downcut approximately two feet. Riprap was present in the channel along with debris jams. The upstream bridge banks and channel were stable.*

Suggestions for Reach B include removing debris and dead trees from the channel and addressing localized problems at outfalls and crossings. Specific suggestions are as follows:

- *Outfall A – remove the log jam, stabilize the right bank at the outfall, revegetate the bank, remove the sediment deposit.*
- *Outfall B – stabilize outfall with rock, step down the outfall, provide toe protection 10 feet upstream and 40 feet downstream.*
- *Outfall C – stabilize outfall with rock, step down the outfall, toe protection 10 feet upstream and 40 feet downstream.*
- *Pedestrian Bridge – redirect runoff from the bridge to the channel bed, stabilize abutments five feet upstream and 15 feet downstream.*
- *Crosstown Boulevard Bridge – grade control/energy dissipation structures to step the channel down and dissipate energy away from the bridge and vulnerable banks; re-direct runoff from bridge.*

Reach C – County Road 61 to East Sixth Street

Overall, the channel seemed to be down-cutting through a large sediment deposit. Two outfalls (42-inch concrete apron & trash grate, 42-inch HDPE) were discharging into a wetland-type feature immediately downstream CR-61 (**Error! Reference source not found.**). The banks were vegetated and relatively stable. Suggestions for Reach C include removal of debris and dead trees in the channel where possible, and insertion of grade control structures.

Reach D – East Sixth Street to Beech Street

*In general the channel in Reach D was downcut approximately two feet from the 50 feet upstream bridge (**Error! Reference source not found.**) to downstream of Beech Street. The left bank appears to be more of a risk for further erosion. Both larger boulders/riprap deposits in the channel and lack of vegetation on channel banks were identified. Upstream of the E. Sixth Street*

*Bridge left bank erosion persists (**Error! Reference source not found.**). The right abutment has been grouted and has been downcut. Power lines cross the channel and are threatened by continued erosion of both banks. The outfall is buried by vegetation and sediment on the right bank upstream of the bridge.*

Suggestions for Reach D include removal of debris and dead trees in the channel, and addressing localized problems at outfalls and crossings. Specific suggestions include:

- *Near Beech Street Bridge – apply grade control throughout the reach, along with toe protection and left bank stabilization.*
- *Upstream of E.Sixthth Street Bridge – repair the left bank abutment (currently presents a safety hazard).*

Reach E – Beech Street to Courthouse Lake Trail

*In Reach E the channel was much wider and deeper than the other reaches (**Error! Reference source not found.**). Near vertical banks existed at outside channel bends and localized erosion of banks was occurring because of debris jams in the channel. In all other aspects Reach E is similar to other reaches. Suggestions for Reach E include removal of debris and dead trees in the channel and addressing localized problems at outfalls.*

East Chaska Creek Summary

With the exception of Reach A, the creek needs attention to prevent further erosion. The majority of Reach B is actively eroding, especially along the left bank (with respect to the downstream direction) and at blockages in the channel. The reach appears to be actively downcutting and is stabilized by two bridges. A systemic approach to the reach is suggested. That would include looking at channel slope and stability and using grade control structures throughout the reach. An alternate suggestion, which would apply from Reach B to Reach E, would be to focus on localized solutions and include stabilizing the worst of the left bank erosion, pruning canopy, removing debris and log jams, and focusing on outfalls and bridge crossings.

Conclusions

The suggested actions to address erosion in each of the four creeks examined in this study are summarized in the following table.

Table 1. Lower Minnesota River Watershed District: Category 2 Stream Resources - Suggested Actions

Resources	Suggested Action
Bluff Creek	1. Provide an energy dissipation structure at the tunnel exit. 2. Apply bank stabilization measures along outside creek bends. 3. Re-direct runoff coming off of the North Hwy 101 Bridge. 4. Stabilize the areas around the bridge abutments.
Riley Creek	1. Provide an energy dissipation structure below CR 61. 2. Redirect flows away from outside creek meanders to prevent future erosion during runoff events.
Carver Creek	1. Stabilize outer bends with toe protection. 2. Grade banks to a more stable slope.

Resources	Suggested Action
	3. Stabilize the gully to prevent future sediment from being transported downstream.
East Chaska Creek Overall Suggestions	1. Remove debris and dead trees from the channel. 2. Address localized problems at outfalls and crossings.
East Chaska Creek Reach A and Reach B	*General: remove debris and dead trees from the channel, address localized problems at outfalls and crossings.* *Specific suggestions:* *1. Outfall A – remove log jam, stabilize right bank at outfall, revegetate bank, remove sediment deposit.* *2. Outfall B – stabilize outfall with rock, step down the outfall, toe protection 10-ft upstream & 40-ft downstream.* *3. Outfall C – stabilize outfall with rock, step down the outfall, toe protection 10-ft upstream & 40-ft downstream.* *4. Pedestrian Bridge – re-direct runoff from bridge to channel bed, stabilize abutments 5-ft upstream and 15-ft downstream.* *5. Crosstown Blvd. Bridge – grade control/energy dissipation structures to step the channel down and dissipate energy away from the bridge and vulnerable banks; re-direct runoff from bridge.*
East Chaska Creek Reach C	*1. Remove debris and* dead *trees in the channel where possible.* *2. Insert grade control structures.*
East Chaska Creek Reach D	*General: remove debris and dead trees in the channel, and address localized problems at outfalls and crossings. Specific suggestions include:* *1. Near Beech Street Bridge – apply grade control throughout the reach, along with toe protection and left bank stabilization.* *2. Upstream of E. Sixth Street Bridge – repair the left bank abutment (currently presents a safety hazard).*
East Chaska Creek Reach E	*1. Selective clearing, excavation, toe protection, erosion control (jute mesh), topsiol replacement and grading for approximately 2,000 feet*

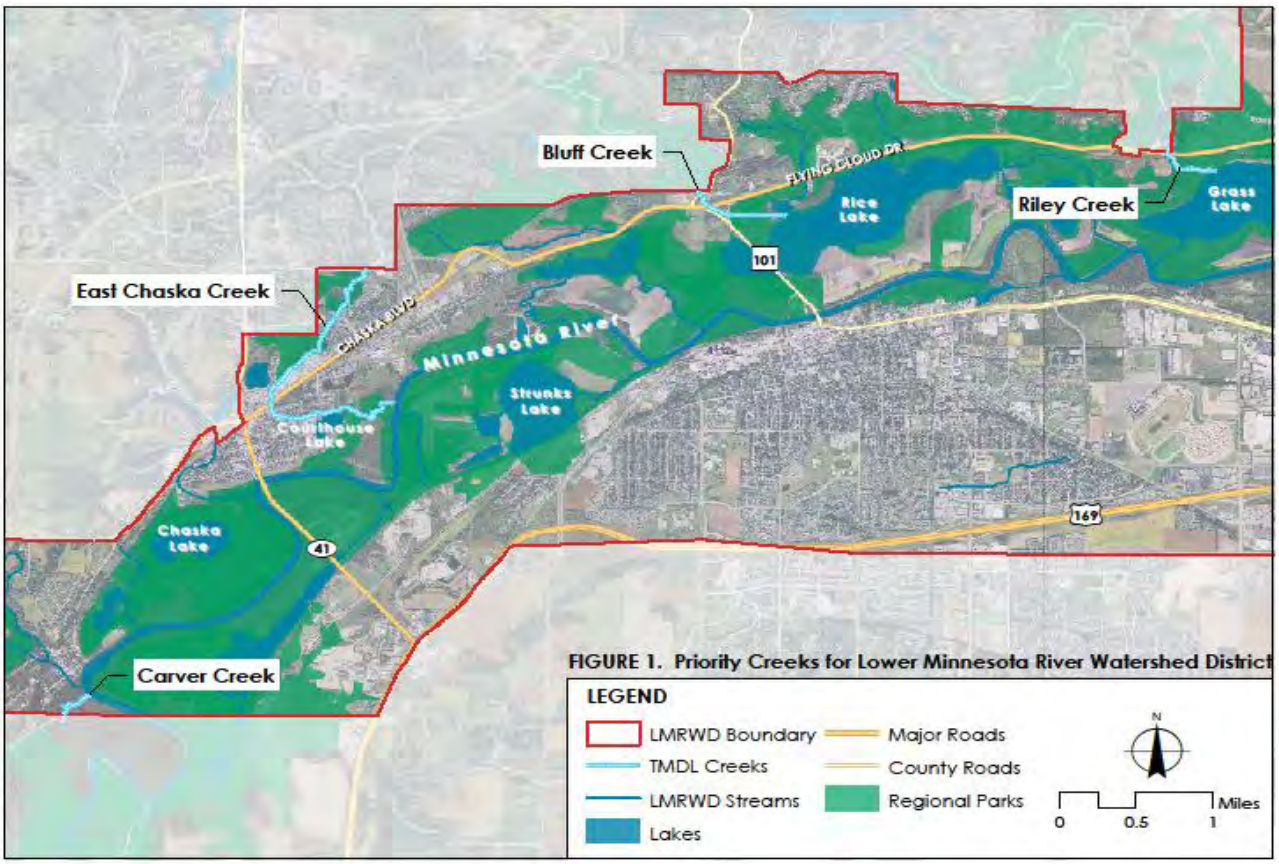


Figure 1. Priority Creeks for Lower Minnesota River Watershed District

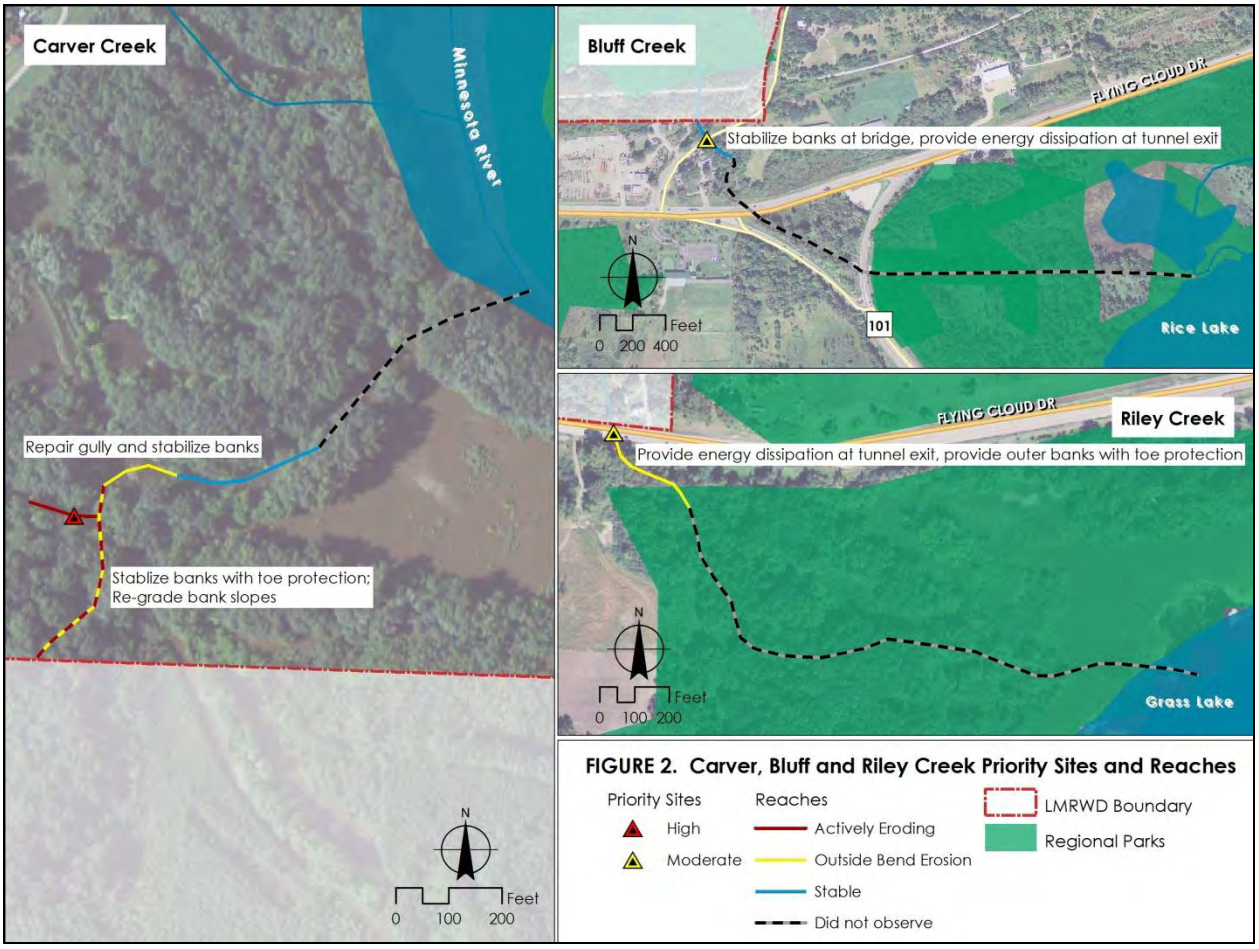


Figure 2. Carver, Bluff, and Riley Creek Priority Sites and Reaches

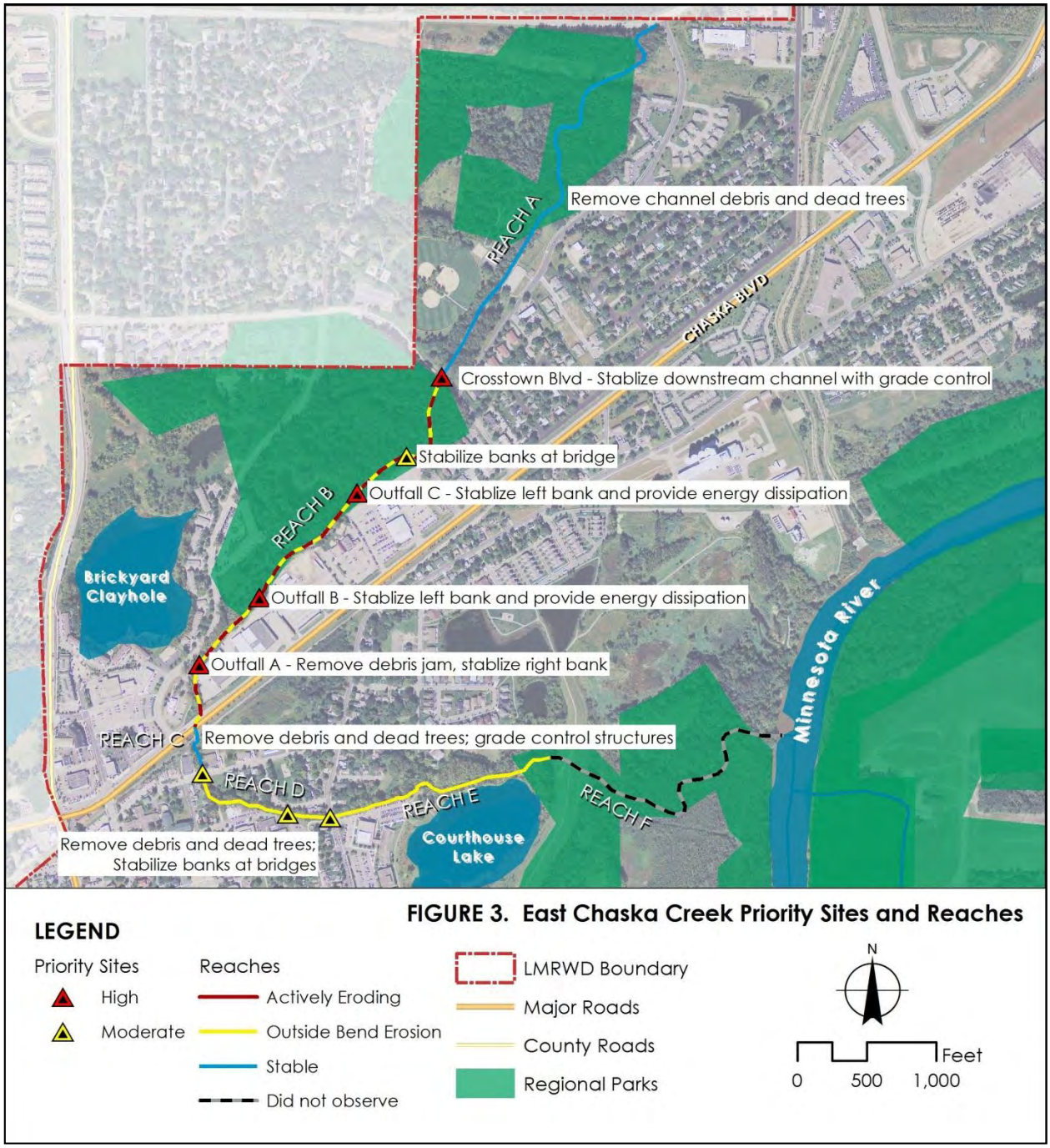


FIGURE 3. East Chaska Creek Priority Sites and Reaches

Figure 3. East Chaska Creek Priority Sites and Reaches

Photo 1. Bluff Creek below Flying Cloud Drive (Eden Prairie) and downstream erosion

Photo 2. Riley Creek WOMP station downstream of Flying Cloud Drive (Eden Prairie)

Photo 3. Carver Creek downstream of trail crossing

Photo 4. Carver Creek gully approximately 150 feet upstream of trail crossing

Photo 5. Carver Creek approximately 200 feet upstream of trail crossing

Photo 6. East Chaska Creek log jam northeast of Lions Park

Photo 7. East Chaska Creek riprap effectively dissipating stream velocity (Downstream of Engler Blvd)

Photo 8. East Chaska Creek Outfall A (just downstream of Arby's parking lot)

Photo 9. Outfall B, East Chaska Creek

Photo 10. Outfall C, East Chaska Creek

Photo 11. Pedestrian bridge north of CR 61 and downstream, East Chaska Creek

Photo 12. Downstream of Crosstown Bridge, East Chaska Creek

Photo 13. Downstream of County Road 61, East Chaska Creek

Photo 14. Downstream of bridge near intersection of Oak St and E. Sixth St., East Chaska Creek

Photo 15. Upstream of bridge near intersection of Oak St and E Sixth St., East Chaska Creek

Photo 16. Upstream of Courthouse Lake, East Chaska Creek

APPENDIX C - FIELD VISIT PHOTOGRAPHS

Photograph A-1: View east of RCP outfall.

Photograph A-2: View east of dual 12” CMP outfalls.

Photograph A-3: View south of debris.

Photograph A-4: View south of debris.

Photograph A-5: View south of debris.

Photograph A-6: View east of PVC outfall.

Photograph A-7: View north of debris.

Photograph A-8: View south of debris.

Photograph A-9: View south of debris.

Photograph A-10: View east of debris.

Photograph A-11: View east of debris.

Photograph A-12: View east of RCP outlet.

Photograph A-13: View east of debris.

Photograph A-14: View east of debris at RCP.

Photograph A-15: View west of debris and RCP.

Photograph B-1: View northwest of scour hole.

Photograph B-2: View northeast of bridge crossing.

Photograph B-3: View southeast of bridge crossing and scour hole.

Photograph B-4: View southwest of scour hole.

Photograph B-5: View northwest of scour hole.

Photograph B-6: View southwest of bridge crossing and scour hole.

Photograph B-7: View southwest of debris and scour hole.

Photograph B-8: View north of bridge crossing and scour hole.

Photograph B-9: View southwest of debris.

Photograph B-10: View east of bank erosion.

Photograph B-11: View south of eroded bank.

Photograph B-12: View south of eroded bank.

Photograph B-13: View north of eroded bank.

Photograph B-14: View south of eroded bank.

Photograph B-15: View south of eroded bank.

Photograph C-1: View northeast of vacant lot for potential constructed wetland.

Photograph C-2: View west of vacant lot for potential constructed wetland.

Photograph C-3: View south of vacant lot for potential constructed wetland.

Photograph C-4: View north of potential settling basin.

Photograph C-5: View south of debris and potential settling basin.

Photograph C-6: View east of debris, creek levee crossing, and potential settling basin.

Photograph C-7: View south of foam from potential sanitary/septic source.

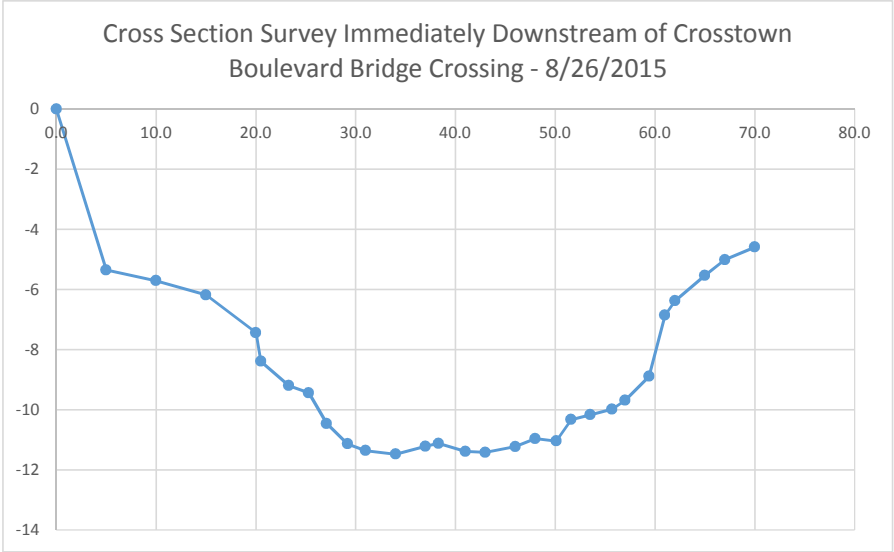
Photograph C-8: View west of foam from potential sanitary/septic source.

Photograph C-9: View east of foam at levee from potential sanitary/septic source.

APPENDIX D - CROSS SECTION SURVEY INFORMATION

East Chaska Creek Cross Section Survey - August 26th, 2015
Immediately Downstream of Crosstown Boulevard Crossing

STA	ROD	Comment	Elevation Relative to Right Bank
0.0		Right Bank	0
5.0	5.35		-5.35
10.0	5.71		-5.71
15.0	6.18	Asphalt	-6.18
20.0	7.44	Asphalt	-7.44
20.5	8.39	Sand, start of riprap, jagged rock 2' diameter	-8.39
23.3	9.2	Sand	-9.2
25.3	9.44	Riprap	-9.44
27.1	10.46	Sand	-10.46
29.2	11.14	Edge of water, sandy	-11.14
31.0	11.36	Water depth 0.48	-11.36
34.0	11.48	Sand/water	-11.48
37.0	11.22	Sand deposit	-11.22
38.3	11.12	Top of sand deposit	-11.12
41.0	11.39		-11.39
43.0	11.42		-11.42
46.0	11.23		-11.23
48.0	10.96		-10.96
50.1	11.04	Start of riprap, left bank	-11.04
51.6	10.33		-10.33
53.5	10.17		-10.17
55.7	9.98		-9.98
57.0	9.69		-9.69
59.4	8.89	End of riprap	-8.89
61.0	6.86		-6.86
62.0	6.38		-6.38
65.0	5.53		-5.53
67.0	5.01		-5.01
70.0	4.59	Left Bank	-4.59

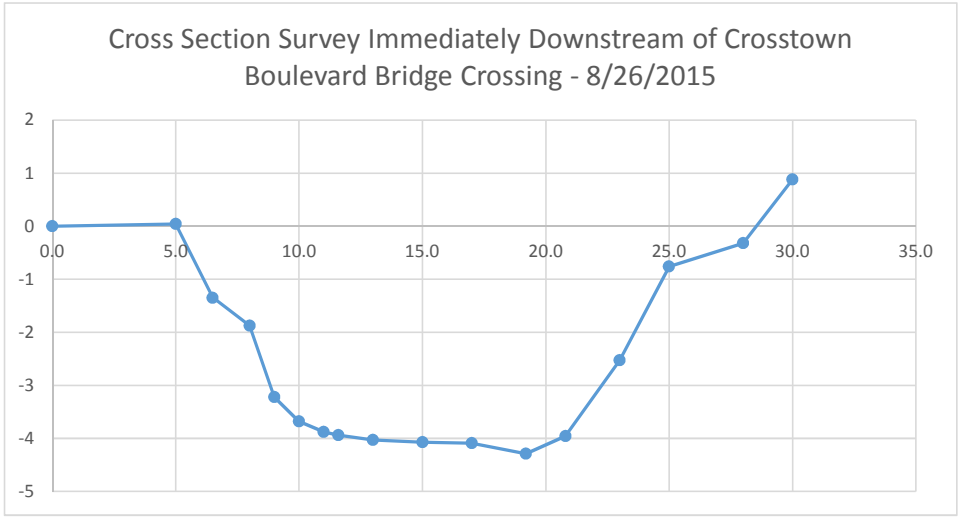


Additional Notes

Backsight is center of bridge at railing invert = 9.24 and 9.22
At STA 57.8, left corner of wing wall
At STA 41.5, center of boxes
Wing wall to wing wall is approx 32'
Structure is 2 concrete boxes, 12.5' wide by 4.15' high
Apron length is 6'
Scour hole 10' wide by 30' wide by 2.5' deep
Flat slope, sandy bed

East Chaska Creek Cross Section Survey - August 26th, 2015
Approx. 750' Downstream of Crosstown Boulevard Crossing

STA	ROD	Comment	Elevation Relative to Right Bank
0.0	5.46		0
5.0	5.42		0.04
6.5	6.81		-1.35
8.0	7.34		-1.88
9.0	8.68		-3.22
10.0	9.14		-3.68
11.0	9.34		-3.88
11.6	9.4	Edge of water, right bank	-3.94
13.0	9.49	water depth 0.05"	-4.03
15.0	9.53	Stream centerline, depth 0.11"	-4.07
17.0	9.55		-4.09
19.2	9.75	Center of thalweg	-4.29
20.8	9.42	Edge of water, left bank	-3.96
23.0	7.99	Old concrete armory	-2.53
25.0	6.22		-0.76
28.0	5.78		-0.32
30.0	4.58		0.88



Additional Notes

Backsight is path, = 5.35 and 5.36

APPENDIX E - BANK STABILIZATION PROJECTS COST ESTIMATE

EAST CHASKA CREEK BANK STABILIZATION COST ESTIMATE

10/19/2015

Task	*Description*	*Units*	*Quantity*	*Unit Price*	*Total*
1.0	**Repair scour hole**				
1.1	Salvage existing riprap	CY	30	$20	$600
1.2	Backfill and grade granular material	CY	105	$50	$5,250
1.3	Install filter fabric	SY	350	$8	$2,800
1.4	Replace salvaged riprap	CY	30	$20	$600
1.5	Install additional riprap (MnDOT Class IV Riprap)	CY	50	$110	$5,500
				TASK TOTAL	$14,750
2.0	**Install bank armoring, toe protection and grade control structure**				
2.1	Remove asphalt bank repairs	SF	140	$6	$840
2.2	Install filter fabric	SY	250	$8	$2,000
2.3	Armor bank with MnDOT Class III Riprap	LF	320	$150	$48,000
2.4	Install riprap toe protection (MnDOT Class III)	LF	340	$95	$32,300
2.5	Install grade control structure	LS	1	$7,500	$7,500
				TASK TOTAL	$90,640
3.0	**Install toe protection**				
3.1	Install toe protection	LF	120	$95	$11,400
				TASK TOTAL	$11,400
				TASKS 1-3 TOTAL	$116,790
4.0	Mobilization (5% Task 1-3 Total)			5%	$5,840
5.0	Surveying	LS	1	$5,000	$5,000
6.0	Engineering (15% Task 1-3 Total)			15%	$17,519
7.0	Contingency (20% Task 1-3 Total)			20%	$23,358
				TASKS 4-7 TOTAL	$51,716
				PROJECT TOTAL COST	**$168,506**

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LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 15, 2018

Agenda Item
Item 7. I. - Project/Plan Reviews

Prepared By
Linda Loomis, Administrator

Summary

i. **I494 Drainage**
Next Summer, 2019, MNDOT is planning a mill and overlay project for the Mendota Bridge. As part of the project they planned to replace the storm water system on the Bridge. The original plan was to replace the corrugated metal pipe with a like system. After working on the plans the project engineers determined that replacement was not going to work, so they have redesigned the system. Staff received the plans last week and is currently reviewing them.

ii. **City of Chaska - Formacoat**
This project plans to develop a new building on currently vacant property along Chaska Boulevard in the city of Chaska. The project property is the site that was identified in the East Chaska Creek Feasibility study as a possible location for a constructed wetland. Staff reviewed the project and while it appears to meet the standards of the LMRWD staff feels this is a missed opportunity and has notified the City.

iii. **City of Eden Prairie - Peterson Residential Development**
Staff received notice from the city of Eden Prairie about a request from the Sever Peterson family to provide city sewer and water to the area in the Northeast quadrant of the intersection of Flying Cloud Drive and Spring Road (across from Lion's Tap). Staff is reviewing the proposal

Attachments
No attachments

Recommended Action
No action recommended