



# LOWER MINNESOTA RIVER WATERSHED DISTRICT

## Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting  
Wednesday, June 13, 2018

### Agenda Item

#### Item 6. H. - Project/Plan Reviews

#### Prepared By

Linda Loomis, Administrator

#### Summary

i. **MN Valley State Trail**

The LMRWD received plans from the DNR regarding filling in the floodplain for the construction of the MN Valley Trail in Bloomington. Staff reviewed the plans and provided comments, which are attached. The DNR responded and requested the District approve the plan even though a small rise in the flood elevation is expected. The DNR response is also attached.

ii. **Scott County WMO - 2019–2026 Comprehensive Water Resources Management Plan Review**

LMRWD Staff has completed its review of the Scott County WMO 2019-2016 Comprehensive Water Resources Management Plan and has provided comments, which are attached.

iii. **Draft Dakota County Comprehensive Plan Review**

LMRWD Staff has completed its review of the Dakota County Comprehensive Plan and has provided comments, which are attached.

iv. **Burnsville Comprehensive Plan Review**

LMRWD Staff has completed its review of the Burnsville 2040 Comprehensive Plan. Comments were provided to the city and are attached. Of note, this plan referred to a groundwater model the city of Burnsville has prepared to develop its Well-head protection plan. The LMRWD has requested that the city share the model with the District. In addition, several projects were identified within the LMRWD that the District would like to partner with the City when the projects are initiated.

v. **City of Burnsville - Dodge of Burnsville**

Staff has completed its review of this project and provided comments to the developer and the city. Comments are attached.

vi. **City of Chaska - MCES L-71 lift station project**

Staff has completed its review of this project and provided comments, which are attached.

vii. **City of Eden Prairie - Abra Auto Body**

The LMRWD received notice of this project and is currently reviewing the project

**Attachments**

LMRWD comments provided to DNR

DNR response to comments

LMRWD comments provided to Scott County WMO - 2026 Comprehensive Water Resources Management Plan

LMRWD comments provided to Draft Dakota County Comprehensive Plan

LMRWD comments provided to Burnsville Comprehensive Plan

LMRWD comments provided to Dodge of Burnsville

LMRWD comments to provided MCES L-71 lift station project

**Recommended Action**

No action recommended



# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 22, 2018

Re: Minnesota Valley State Trail Project—Floodplain Analysis Review

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The May 11, 2018, Minnesota Department of Natural Resources (MNDNR) memorandum describing the floodplain analysis of the Minnesota Valley State Trail Project (Project) was reviewed, as requested, by the Lower Minnesota River Watershed District (District).

The proposed Project is the construction of a trail along the north side of the Minnesota River in the City of Bloomington, Minnesota. The trail extends from the Minnesota Valley National Wildlife Refuge Visitor Center near Interstate 494 to the Bloomington Ferry Bridge. A hydraulic analysis was conducted using the Hydrologic Engineering Center's River Analysis System (HEC-RAS) to evaluate the impact of the proposed Project on the base flood or 100-year flood elevation of the river.

The existing geometry of the Minnesota River effective hydraulic model was modified at 48 channel cross sections (also called "affected reach") that intersect the proposed Project. Each cross section in the affected reach was altered to show the trail width and elevations, as shown on the Project plans (the Project plans were not provided for review). The roughness coefficient for the trail portion of each cross section was set at 0.013, which is appropriate for smooth asphalt according to Ven Te Chow's 1959 Open Channel Hydraulics book.

The model results show no change in the water surface elevation due to the proposed Project at 19 of the 48 modified cross sections, mostly located downstream of the Interstate 35 (I-35) bridge. Twenty-seven cross sections show a small decrease (between 0.01 and 0.05 feet) in water surface elevation. These cross sections are located almost entirely upstream of the I-35 bridge, with the maximum decrease of 0.05

feet occurring near the upstream end of the affected reach. Two cross sections, one upstream and one just downstream of the I-35 bridge, show a 0.01-foot increase in water surface elevation as compared to the existing conditions model. The MNDNR memo states that this increase is due to a reduction in the energy gradient at the two cross sections. The water velocity dropped a very small amount at these two cross sections, which caused the water depth to increase slightly.

The Project requires placing fill in the 100-year floodplain, so it triggers the District Floodplain and Drainage Alteration Standard, which can be found in section 3.3 of the [LMRWD Third Generation Watershed Management Plan, 2011–2020](#) (amended June 2015).

Conclusions:

1. The HEC-RAS model shows that construction of the proposed Project within the floodplain of the Lower Minnesota River will cause a 0.01-foot increase in the 100-year flood elevation at two cross sections in the affected reach.
2. Floodplain and Drainage Alteration Standard:
  - a. The hydraulic modeling shows a 0.01-foot rise in the 100-year flood elevation at two cross sections, so the project does not meet the requirements of Regulation A of the District standard. To meet the standard, the Project must provide compensatory storage equal to the volume of fill being placed in the floodplain, or the model must be modified to show no rise in the 100-year floodplain elevation.
  - b. The proposed Project does not include construction of any new structures and it is not located in the floodway; therefore, Regulations B and C of the District standard do not apply.

Additional information is needed before the Project can meet the District's floodplain requirements. Compensatory storage must be provided, or the hydraulic model must be modified to show no rise.

Before any land-disturbing activity takes place, it may be necessary to provide information showing that the plans meet the District Construction Erosion Control Standard. Additionally, if significant changes are made to the Project, information must be provided to the District expressing how the Project will maintain compliance with applicable District standards.

cc: Jeff Thuma, Burns & McDonnell



MEMORANDUM

To: Della Schall Young, CPESC, PMP  
 Young Environmental Consulting Group, LLC

From: Salam Murtada, P.E., PH, CFM  
 DNR- EWR, Floodplain Program

CC: Linda Loomis, Administrator  
 Lower Minnesota River Watershed District

Date: June 4, 2018

Subject: Addressing the Floodplain Analysis Review for the Minnesota Valley State Trail Project

Thank you for reviewing the floodplain analysis for the Minnesota Valley State Trail Project. According to your technical memo, issued on May 22, 2018, the rise of 0.01-ft in two cross-sections (RS 23.5 and RS 25), caused the project to not meet the requirements of Regulation A of the District Standard. Furthermore, the review letter recommended that the proposed conditions in the model should be modified further to show a no rise in the 100-YR base flood elevation. This could be done through modifying the trail design or providing a compensatory storage area for the amount of fill being placed. In either case, the results of these changes were supposed to yield a 0.00-ft rise in the HEC-RAS model.

Since the reduction in the energy gradient contributed to this minimal rise, the only possible way to eliminate the rise would be to actually raise the elevation of the trail grade, not lower it. As shown in the HEC-RAS output table below, raising the trail grade for RS 23.5 by 2-ft, would cause the 100-YR flow velocity to increase from 5.62 fps to 5.65 fps, just enough to maintain the existing water surface elevation of 715.09-ft. Conversely, for RS 25, the trail grade had to be raised by 1-ft and velocity increased from 5.46 fps to 5.48 fps for the water surface elevation to be maintained at 715.37-ft.

Reach	River Sta	Profile	Plan	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Lower	26	100-yr	Trail_City	03000.00	671.70	715.94	691.50	716.11	0.000128	4.30	45396.68	2437.49	0.13
Lower	25	100-yr	Ex_NewQ&SWSE	03000.00	673.70	715.37	691.59	715.74	0.000226	5.54	35690.85	6438.40	0.17
Lower	25	100-yr	NewFISQ_Trail	03000.00	673.70	715.38	691.59	715.74	0.000220	5.46	35721.75	6438.57	0.16
Lower	25	100-yr	Trail_City	03000.00	673.70	715.37	691.59	715.73	0.000221	5.48	35692.95	6438.50	0.16
Lower	23.7	100-yr	Ex_NewQ&SWSE	03000.00	670.40	715.22	691.02	715.65	0.000256	5.68	25785.78	6041.83	0.17
Lower	23.7	100-yr	NewFISQ_Trail	03000.00	670.40	715.21	690.99	715.64	0.000251	5.74	25660.75	6040.36	0.18
Lower	23.7	100-yr	Trail_City	03000.00	670.40	715.21	690.99	715.64	0.000251	5.74	25655.69	6039.83	0.18
Lower	23.6		Bridge										
Lower	23.5	100-yr	Ex_NewQ&SWSE	03000.00	670.40	715.09	691.02	715.52	0.000259	5.69	25807.77	6023.82	0.18
Lower	23.5	100-yr	NewFISQ_Trail	03000.00	670.40	715.10	691.02	715.51	0.000252	5.62	25777.69	6024.42	0.17
Lower	23.5	100-yr	Trail_City	03000.00	670.40	715.09	691.02	715.51	0.000255	5.65	25740.58	6023.38	0.17
Lower	23	100-yr	Ex_NewQ&SWSE	03000.00	671.00	715.04	691.01	715.47	0.000247	5.80	30255.32	4955.19	0.17
Lower	23	100-yr	NewFISQ_Trail	03000.00	671.00	715.03	691.01	715.46	0.000245	5.78	30160.30	4954.47	0.17
Lower	23	100-yr	Trail_City	03000.00	671.00	715.03	691.01	715.46	0.000245	5.78	30160.30	4954.47	0.17

Since eliminating the rise for these two cross-sections would result in raising the grade of the trail, a negative outcome, we recommend approving the original design and accepting the 0.01-ft minimal rise at the two cross-sections based on the energy gradient reduction.

Thank you for your consideration. Please let me know if you need further information.

# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 23, 2018

Re: Scott Watershed Management Organization 2019–2026 Comprehensive  
Water Resources Management Plan — Review

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The Lower Minnesota River Watershed District (District) reviewed the Scott Watershed Management Organization 2019–2026 Comprehensive Water Resources Management Plan (Scott WMO Plan) and compared it with the District’s Watershed Management Plan (District Plan) to better understand how the District and Scott WMO can work together to protect, preserve, and manage the surface water and groundwater resources within the District.

Section 4 of the Scott WMO Plan briefly describes the standards of the Scott WMO. A complete version of the 2018 draft update to the standards is included as Appendix D of the Scott WMO Plan. Many of the goals, policies, and strategies found in the Scott WMO Plan are similar to those in the District Plan, especially those related to the management of surface water, groundwater, and flood management. The following sections describe how the standards described in the Scott WMO Plan compare with the District regulations on topics of shared concern to both entities.

## **STORMWATER MANAGEMENT**

Standard D of the Scott WMO standards addresses stormwater management. The standard requires an approved Stormwater Management Plan and permit from the appropriate local government unit (LGU) if a land-disturbing activity or the development or redevelopment of land creates one or more acres of new impervious surface. This is similar to the District’s Stormwater Management Standard, which requires compliance for development, redevelopment, and drainage alterations (including roads) creating new impervious areas more than one acre.

Standard D of the Scott WMO contains the following requirements for land-disturbing activity, development, and redevelopment projects:

- 1) Runoff rates for the proposed land-disturbing activities shall:
  - a. Not exceed existing runoff rates for the 2-year, 10-year, and 100-year critical-duration storm events
  - b. Not accelerate on- or off-site water course erosion, downstream nuisance, flooding, or damage, as demonstrated by the applicant according to an assessment of the potential for adverse impacts downstream of site improvements (assessment only required for sites 20 acres or larger, new impervious area of 8 percent or more of the project area, sites where the rate control requirement (above) cannot be met, or sites where the activity causes an increase in runoff volume for the 2-year storm event)
  - c. Runoff rates may be restricted to less than the existing rates when necessary for the public health, safety, and general welfare of the Scott WMO
- 2) The minimum design capacity of all drainage systems shall accommodate the runoff from a 10-year storm event. All drainage systems and facilities must be designed to withstand the runoff from the critical 100-year event without damage to the system or facility, downstream areas and/or significant risk to public health, safety and welfare.
- 3) Detention basins must be designed to provide the following:
  - a. An outlet structure to control the 2-year, 10-year, and 100-year critical storm events to existing runoff rates
  - b. An identified overflow spillway and downstream route sufficiently stabilized to convey a 100-year critical storm event
  - c. A normal water elevation above the ordinary high water (OHW) level of adjacent waterbodies or normal water level where an OHW is not established
  - d. Access for future maintenance
- 4) Permanent stormwater quality management must be provided in accordance with the National Pollution Discharge Elimination System (NPDES) General Construction Permit.

The existing and proposed District standard includes rate control requirements very similar to those in section 1.a. The Scott WMO Plan requirement for a potential adverse impact assessment for larger sites (1.b) is more restrictive than the District standard, but the requirement is not unreasonable for sites greater than 10 acres. Although the



District plan specifies that stormwater runoff equal to one inch of runoff from the new impervious area must be retained onsite (i.e., infiltration or other volume reduction practices) and lists several infiltration restrictions, the Scott WMO Plan does not include any specific infiltration volume requirements. However, the Scott WMO Plan includes the requirement that permanent stormwater quality management must meet the requirements of the NPDES General Construction Permit, which includes retention and infiltration requirements and constraints similar to the District's.

Section E of the Scott WMO standards addresses erosion and sediment control. The specific erosion control plan, inspection, and maintenance requirements in the Scott WMO standard closely match the District's.

## **FLOODPLAIN ALTERATION**

Standard F of the Scott WMO Standards addresses floodplain alteration. This standard prohibits floodplain alteration or filling that causes a net decrease in flood storage capacity below the projected 100-year high water elevation unless it is shown that the proposed alteration or filling, together with the alteration or filling of all other land on the affected reach of the waterbody to the same degree of encroachment as proposed by the applicant, will not cause high water or aggravate flooding on other land and will not unduly restrict flood flows. If "high water" is intended to mean "a water surface higher than the 100-year high water elevation," then this standard is similar to the District standards, which say that fill should not cause a decrease in storage capacity below the 100-year elevation, an increase in the 100-year elevation, or a decrease in the conveyance capacity of a waterbody. The Scott WMO standard is more restrictive because it requires these standards to be met when the entire reach is altered or filled to the same degree of encroachment, as proposed by the applicant. Standard F includes an exception stating that the criteria described above does not apply to fill amounts less than 40 cubic yards in the Minnesota River flood fringe or less than 20 cubic yards in other National Flood Insurance Program flood fringe areas and other floodplains areas in the Scott WMO. The District's Floodplain and Drainage Alteration Standard does not include this exception and applies no matter how much fill is placed.

Criteria concerning the minimum allowable low floor elevation for new structures is in Standard D, which states, "Where the 100-year flood level has been established, low floor elevations shall be at least 1 foot above the 100-year flood level." This is less restrictive than the District standard, which requires the lowest floor to be at least two feet above the 100-year high water elevation. As defined by the Minnesota DNR, the elevation of the lowest floor of a structure must be the 100-year high water elevation plus any stage increase due to determining a floodway, plus a minimum of one foot of freeboard. Standard D includes the required one foot of freeboard but does not address the stage increase due to determining the floodway. On a waterway that has undergone

a detailed study, the actual stage increase from the floodway determination modeling must be added. If no floodway has been established, the maximum potential stage increase of 0.5 feet must be added to the minimum lowest floor elevation.

## **BLUFF MANAGEMENT**

The definitions section of the Scott WMO Standards defines a bluff as a topographic feature in which the average grade of any portion of the slope is 30 percent or greater, and there is at least a 25-foot rise in elevation. The toe and top of the bluff are defined as the points at the lower and upper part of the bluff, respectively, where the average slope levels off to 18 percent or less over a 50-foot segment. The Scott WMO has developed a Bluff Overlay district, defined as an area “where potential bluffs exist.” The definition also says that the Standards document includes a map of the bluff overlay districts of the Scott WMO, but the Scott WMO Plan does not include this map.

The Scott WMO bluff standard requires that any land-disturbing activity, development, or redevelopment in a bluff overlay district, as shown on the mapping (not included with the Scott WMO Plan), requires a topographic survey to determine if a bluff is indeed present. Where bluffs are present, the following standards apply:

1. All grading, removal of vegetation, and/or other land-disturbing activities are prohibited in the bluff impact zone (defined as a 25-foot zone at the top of a bluff) and/or bluff face.
2. Structures must be set back at least 30 feet from the top of the bluff.
3. Sewage treatment systems (community and individual) must be set back at least 50 feet from the top of the bluff.
4. Stormwater ponds, swales, infiltration basins, and other soil saturation-type features must be set back at least 50 feet from the top of the bluff.

The Scott WMO bluff standard includes some more lenient standards for bluffs within the Scott WMO bluff overlay district that have been identified and mapped in a Local Water Plan developed by an LGU within the Scott WMO watershed. Scott WMO still requires that activity in the bluff impact zone must not adversely affect slope stability or result in any new water discharge points along the bluff.

The District’s proposed Steep Slopes Standard includes a Steep Slopes Overlay district based on slopes greater than 18 percent that does not restrict structure location in the overlay zone. The District standard does not explicitly prohibit intensive vegetation clearing, although it is strongly discouraged. Land-disturbing activities that involve excavation of 50 cubic yards or more in the steep slope overlay district require a qualified professional or a professional engineer registered in the state of Minnesota to

certify that the area for the proposed activity, structure, or use is suitable.

## **HIGH VALUE RESOURCE AREAS**

Section 1 of the Scott WMO Plan (Land and Water Resource Inventory) states that the Scott Soil and Water Conservation District monitors groundwater observation wells within the Savage Fen and surrounding area. The Scott WMO Standards define “Highly Susceptible Wetland Type” as “a wetland characterized as a sedge meadow; open or coniferous bog; calcareous fen; low prairie; coniferous or hardwood swamp; or seasonally flooded wetland.” However, the Scott WMO Standards contain no information specific to the protection of fens or trout waters.

## **GROUNDWATER**

Most residents of the Scott WMO rely on groundwater from one of the four major aquifers in Scott County for their drinking water. One major exception is the City of Savage, which receives a portion of its drinking water from surface water sources in the City of Burnsville. Groundwater flow gradients in Scott County generally move toward the Minnesota River. The Scott WMO acknowledges that infiltration, recharge, and groundwater contamination within the Scott WMO is connected to and potentially affects groundwater conditions in the District. Areas near the Minnesota River in the northern and northwestern parts of the Scott WMO have relatively shallow bedrock and soils, with very fast infiltration rates. The Scott WMO has identified aquifers in these areas as being susceptible to contamination.

The Scott WMO identified groundwater protection as a high priority. Related policies included in the Scott WMO Plan include preserving and protecting groundwater quality and quantity and improving the understanding of groundwater resources.

The Scott WMO Plan includes numerous strategies that relate to the goal of protecting groundwater quality and supply, including continued groundwater monitoring, promoting water conservation and supporting water reuse, practices to control nitrates in the Belle Plain Drinking Water Supply. Management Area, establishing living cover in high-risk areas, and requiring compliance through the Scott WMO Standards.

However, the Groundwater Standard (Standard J) has been deleted from the Scott WMO Standards because Individual Sewer Treatment System authorities are statutorily mandated functions of the MPCA and the County. The County already has ordinances, and the language in the Scott WMO Standards was inconsistent with that of the county ordinance.

## **POTENTIAL PROJECTS FOR PARTNERING WITH THE DISTRICT**

### **Capital Improvements Plan, 2019–2026**

- Salisbury Hill (CR 51) Ravines - Unstable ravines are contributing large amounts of sediment to the Minnesota River and affecting county road maintenance. This project was included as a CIP in the previous plan but has been delayed because of changing priorities from the 2014 disaster and the need to wait for decisions about the future of roads in the area. The schedule is unknown; we are waiting for decisions about roads in the area (\$750K–\$1.5M, depending on the option selected).
- Blaha Ravine - This ravine stabilization project has been discussed with the City of Belle Plaine in the past; they have now included it as an official request in the letter of issues submitted to the Scott WMO at the start of the plan update process. The Scott WMO acknowledges that this will have some pollutant loading reduction to the Minnesota River, but the reduction is small compared to the whole basin; thus, it is listed as a Tier 2 project. The City of Belle Plaine will lead the project (\$234K—2016 estimate; it is unknown if the Scott WMO support will be financial, technical, grant writing, or a combination).
- Chestnut Ravine - This ravine stabilization project has been discussed with the City of Belle Plaine in the past; they have now included it as an official request in the letter of issues submitted to the Scott WMO at the start of the plan update process. The Scott WMO acknowledges this will have some pollutant loading reduction to the Minnesota River, but the reduction is small compared to the whole basin; thus, it is listed as a Tier 2 project. The City of Belle Plaine will lead the project (\$102K—2016 estimate; it is unknown if the Scott WMO support will be financial, technical, grant writing, or a combination).

## SUMMARY

The District commends the Scott WMO for developing a thoughtful and thorough Comprehensive Water Resources Management Plan. The Scott WMO clearly takes pride in its efforts to conserve and protect natural resources. A comparison of the Scott WMO Plan with the District Plan shows that the Scott WMO and the District share several goals in our efforts to preserve and manage surface water resources and groundwater.

The following recommendations for inclusion in the Scott WMO Plan are suggested to strengthen the plan and better align the Scott WMO Plan and the District Plan:

- Scott WMO Standards, Standard F (Floodplain Alteration), Section 2a: clarify the meaning of the phrase “will not cause high water or aggravate flooding on other land.” Does this mean “cause an increase in the 100-year flood elevation”?
- Scott WMO Standards, Standard F (Floodplain Alteration), Section 2a: replace

the phrase “unduly restrict flood flows” with “decrease conveyance capacity” or provide an explanation of what is meant by unduly restrict flood flows.”

- Scott WMO Standards, Standard F (Floodplain Alteration), Section 4b: include a statement saying that this exception does not provide an exception to LMRWD requirements. The District’s Floodplain and Drainage Alteration Standard applies regardless of the volume of fill being placed.
- Scott WMO Standards, Standard D: include a requirement that the lowest floor of the lowest enclosed area of the proposed structures must be a minimum of two feet above the 100-year flood level of nearby surface waters.
- After the Board of Soil and Water Resources approves the 2018 amendment to the LMRWD Watershed Management Plan, consider updating the Scott WMO bluff management standard to better align it with the District bluff standard.

The District looks forward to future partnerships with the Scott WMO as we work to complete potential projects that meet our common goals of reducing pollutants and sediment entering the Minnesota River and protecting, preserving, and managing our shared surface and groundwater resources.

CC: Jeff Thuma, Burns & McDonnell

# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 22, 2018

Re: Draft Dakota County Comprehensive Plan Review

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The draft Dakota County Comprehensive Plan (DC2040) was reviewed by the Lower Minnesota River Watershed District (District). The DC2040 was compared to the District's Watershed Management Plan (Plan) to better understand how the District and Dakota County (County) can work together to protect, preserve, and manage the surface water resources and groundwater within the District.

The sections of the DC2040 relevant to the District are chapter 5, Land Use and Natural Resources, and chapter 6, Implementation. Many of the goals, objectives, and policies found in chapter 5 of the DC2040 are similar to the goals, policies, and strategies found in the District Plan, especially those related to the management of surface waters, groundwater, floodplains, and unique natural resources. Dakota County relies on several ordinances to meet the goals and objectives of the DC2040. The following sections describe how the County ordinances compare to the District regulations on topics of shared concern to both entities.

## **STORMWATER MANAGEMENT**

Two Dakota County ordinances address stormwater management. The first is Ordinance 132, Dakota County Storm Sewer System. The ordinance includes the following stormwater requirements for construction in areas that drain to the County municipal separate storm sewer system (MS4). According to the ordinance, the requirements are consistent with the general National Pollutant Discharge Elimination System (NPDES) permit:

1. For new development projects, construction activity shall result in no net increase from pre-project conditions, on an annual average basis, of stormwater discharge volume, stormwater discharges of total suspended solids (TSS), and stormwater

discharges of total phosphorus (TP).

2. For redevelopment projects, construction activity shall result in a net reduction, from pre-project conditions, on an annual average basis, of stormwater discharge volume, stormwater discharges of TSS, and stormwater discharges of TP.

Unlike the District Stormwater Management Standard, Ordinance 132 does not include a stormwater rate control requirement, and the volume control requirement does not specify the amount of infiltration. However, the ordinance does state that post-construction stormwater management best management practices (BMPs) must incorporate infiltration and other green infrastructure techniques to meet the County requirements to the maximum extent practicable.

Dakota County Ordinance 132 also includes the following stormwater management limitations:

1. Structural stormwater BMPs designed for infiltration are prohibited when the BMP will receive discharges from, or be constructed in, areas:
  - a. Where industrial facilities are not authorized to infiltrate industrial stormwater under an NPDES Industrial Stormwater Permit issued by the MPCA
  - b. Where vehicle fueling and maintenance occur
  - c. With less than three feet of separation distance from the bottom of the infiltration system to the elevation of the seasonally saturated soils or top of bedrock
  - d. Where high levels of contaminants in soil or groundwater will be mobilized by infiltrating the groundwater
2. Infiltration techniques will be restricted without higher engineering review sufficient to provide a functioning treatment system and prevent adverse impacts to groundwater when the infiltration device will be constructed in areas:
  - a. With predominantly Hydrologic Soil Group D (clay) soils
  - b. Within 1,000 feet up-gradient, or 100 feet down-gradient of active karst features
  - c. Within a Drinking Water Supply Management Area (DWSMA), as defined in Minn. R. 4720.5100, subp. 13
  - d. Where soil infiltration rates are more than 8.3 inches per hour

The District standard includes similar restrictions on infiltration practices, with some exceptions. The District standard does not include items 1.d, 2.b, or 2.d from the County

ordinance. Meanwhile, the County ordinance does not include an item from the District standard that restricts infiltration practices within 50 feet of a septic tank or drain field.

The shoreland development section of Dakota County Ordinance 50 includes these additional stormwater management requirements:

1. Impervious surface coverage of lots can't exceed 25 percent.
2. Constructed facilities used for stormwater management must be designed and installed according to the requirements of the area's Soil and Water Conservation District.
3. Newly constructed stormwater outfalls to public waters must provide for filtering or settling of suspended solids and skimming of surface debris before discharge.
4. Settling basins to intercept urban runoff must be sized for at least a 10-year design event.

## **FLOODPLAIN MANAGEMENT**

Section 18 of Dakota County Ordinance 50 addresses floodplain management. Like the District Floodplain and Drainage Alteration Standard, the County ordinance prohibits placing fill in the floodway, and fill is allowed in the flood fringe as long as it does not adversely affect the hydraulic capacity of the channel. Like the District, the County requires that any fill placed in the flood fringe must be offset with compensatory storage. However, the County requires compensatory storage at a ratio of 2:1 storage to fill, while the District only requires a 1:1 ratio. In addition, the County requires that the compensatory storage be located on the same lot or parcel that the fill is placed.

Ordinance 50 requires the lowest floor of all structures to be no lower than "one foot above the elevation of the regional flood plus any increases in flood elevation caused by encroachments on the flood plain that results from designation of a floodway." This means that on streams with a floodway, the lowest floor of a structure can't be less than 1.5 feet above the 100-year flood elevation. On streams with no floodway delineated, the lowest floor can't be less than one foot above the 100-year flood elevation. In contrast, the District requires that the lowest level of proposed structures be a minimum of two feet above the 100-year flood elevation.

## **BLUFF MANAGEMENT**

The shoreland section of Dakota County Ordinance 50 includes requirements related to bluffs. The ordinance defines a bluff line as a line along the top of a slope connecting the points at which the slope becomes less than 12 percent. The bluff impact zone is the bluff and adjacent land located within 40 feet from the top of a bluff. Structures



cannot be placed in bluff impact zones. This differs from the District's proposed bluff standard, which includes a Steep Slope Overlay district based on slopes greater than 18 percent and doesn't restrict structure location in the overlay zone.

Clear-cutting and intensive vegetation clearing within the bluff impact zone is not allowed, though the removal of dead or diseased trees is allowed. Disturbance of more than five cubic yards on steep slopes or in a bluff impact zone requires a shoreland alteration permit, and fill or excavated material cannot be placed in a bluff impact zone. Plans to place fill or excavated material on steep slopes must be reviewed by a qualified professional for continued slope stability and must not create finished slopes of 30 percent or greater. In contrast, the proposed District bluff standard does not explicitly prohibit intensive vegetation clearing, though it is strongly discouraged. Land-disturbing activities that involve excavation of 50 cubic yards or more in the Steep Slope Overlay district requires a qualified professional or a professional engineer, registered in the state of Minnesota, to certify that the area for the proposed activity, structure, or use is suitable.

## **FENS AND TROUT WATERS**

The DNR identifies three calcareous fen areas in Dakota County, all located in the Minnesota River Valley. The County also has 11 designated trout streams. One of the water management policies included in the DC2040 supports the protection of unique water resources such as fens and trout streams. Fens are fed by groundwater and trout streams are spring-fed. As development in Dakota County increases, the amount of impervious surface also increases, which reduces natural rainwater infiltration and aquifer recharge. The County recognizes that encouraging natural infiltration of stormwater is important in protecting surface water features that depend on groundwater. This is why the County's storm sewer system ordinance stresses incorporating infiltration to the maximum extent practicable, as discussed previously.

The District is home to several rare fens and sensitive trout waters. The specific hydrologic and chemical requirements of fens and trout waters make them especially sensitive to sedimentation, stormwater runoff, and changed groundwater conditions. It is the District's policy to prevent resource degradation due to erosion and sedimentation and protect and improve natural resources within the watershed to protect further degradation. This is especially true for high value resources such as fens and trout waters.

The establishment of stricter protection for areas contributing runoff to a trout water or fen (referred to as High Value Resource Areas [HVRA] in the District standards) is critical for preventing further destruction of these unique and irreplaceable resources.

Three proposed District standards include stricter requirements for HVRAs. The District Erosion and Sediment Control Standard, which normally applies to land-disturbing activities of one acre or more, applies to the alteration or removal of 5,000 square feet or more of surface area or the excavation of 50 cubic yards or more of earth within HVRAs. Similarly, the District Stormwater Management Standard, which normally applies to development, redevelopment, and drainage alterations (including roads) that create new impervious areas greater than one acre, applies to new impervious areas greater than 10,000 square feet in HVRAs.

The District Water Appropriations Standard is also stricter in HVRAs. Normally this standard applies to groundwater appropriations of 10,000 gallons per day and one million gallons per year or greater for a non-essential use. In HVRAs, groundwater appropriations of less than 10,000 gallons per day and one million gallons per year for non-essential use are regulated, including temporary dewatering activities. Projects meeting the above criteria within HVRAs must also develop a discharge management plan and demonstrate no net change in groundwater levels to adjacent fens and trout waters.

## **GROUNDWATER**

Ninety percent of Dakota County's population relies on groundwater for drinking water. Two-thirds of the County land area is highly vulnerable to groundwater contamination because of thin soils and glacial material over fractured underlying bedrock. In 2013 and 2014, 13 townships and five cities in Dakota County were selected for private well nitrate sampling, and 27 percent of private wells sampled were above the health standard for nitrates.

Dakota County Ordinance 114, Well and Water Supply Management, includes standards for regulation of wells and water supplies to protect groundwater and the environment. The ordinance addresses proper location and construction of wells; necessary modifications and reconstruction; operation, maintenance, and repair; permanent sealing; and annual maintenance permitting, including registered use wells and unused wells.

The ordinance does not, however, address the issue of groundwater quantity. Excessive consumption of drinking water for uses that do not require drinkable water quality can threaten the long-term supply of drinking water. It is unclear whether groundwater supplies are adequate in some areas of the County to meet drinking water demand. In addition, a sustainable, non-fluctuating supply of groundwater is required to maintain water levels and soil chemistry in fens, and temperature in trout waters. The County's storm sewer system ordinance does stress incorporating infiltration to the maximum extent practicable, but there are no standards in place outlining specific

infiltration requirements.

## **MISSISSIPPI RIVER CORRIDOR CRITICAL AREA (MRCCA) PLAN**

Dakota County has updated Ordinance 50 (Shoreland and Floodplain Management) for consistency with major provisions and enforceable standards of the Mississippi River Critical Area Act in the past and expects to do so again after adoption of its 2040 Comprehensive Plan, as necessary. As part of DC2030, Dakota County adopted the MRCCA goals and objectives. Three of the goals relate directly to the District Plan:

1. Protect and preserve unique and valuable state and regional resources in the corridor.
2. Prevent and mitigate irreversible damage to the corridor.
3. Protect and preserve the biological and ecological functions of the corridor.

There are eleven projects on the Capital Improvement Plan (CIP) for projects within the MRCCA. The projects include construction and reconstruction of trails, adding signage and kiosks to existing parks and trails, highway reconstruction, a transit study, two master plan updates, and some ADA improvements. None of the projects include any work specific to water quality or quantity, floodplains, or groundwater.

An additional \$13.7 million is included in the Dakota County 2018–2022 CIP for wetland restoration projects and habitat protection on private lands, which could be applied to eligible properties with willing owners in the MRCCA. No specifics about these projects were provided.

## **POTENTIAL PROJECTS FOR PARTNERING WITH THE DISTRICT**

### Transportation Capital Improvement Plan, 2018–2022

- Storm sewer system repair in Dakota County and Cities – \$500,000 annually (cost divided between County and cities)

### Parks and Greenways Capital Improvement Plan, 2018–2022

- Natural Resources—advancing natural resource protection and restoration of the park and greenway system. In addition to managing 2,280 acres of land that have been restored or are undergoing restoration, the 2018–2022 CIP will restore an additional 956 acres.
- No specific projects are named, but \$1.023 million dollars is set aside annually for “Natural Resources Management: Base Program Funding.”

### Land Conservation Capital Improvement Plan, 2018–2022

- The Land Conservation Program works with willing landowners and partners to

permanently protect and manage shoreland along rivers, streams, and undeveloped lakeshore; high-quality natural areas; wetlands; and associated agricultural land throughout Dakota County.

- Habitat Protection and Restoration (2018, 2019, 2021) – \$11.335 million total (cost divided between County, state, and the Environmental Legacy Fund).

## **SUMMARY**

The District commends the County for developing a thoughtful and thorough Comprehensive Plan update. The County clearly takes pride in its efforts to conserve and protect natural resources. A comparison of the DC2040 to the District Plan shows that the County and the District share several goals in our efforts to preserve and manage surface water resources and groundwater.

The following recommendations for inclusion in the DC2040 are suggested to strengthen the County's plan and better align the DC2040 and the District plan:

- In Ordinance 132, Dakota County Storm Sewer System, include a standard that restricts infiltration practices within 50 feet of a septic tank or drain field.
- In Section 18 of Ordinance 50, require the lowest level of proposed structures to be a minimum of two feet above the 100-year flood elevation.

The District looks forward to future partnerships with the County as we work to complete potential projects that meet our common goal of protecting, preserving, and managing our shared surface water groundwater resources.

CC: Jeff Thuma, Burns & McDonnell

# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 22, 2018

Re: City of Burnsville 2040 Comprehensive Plan Update Review

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The *City of Burnsville 2040 Comprehensive Plan Update (Burnsville 2040)* was reviewed by the Lower Minnesota River Watershed District (District). The District compared the *Burnsville 2040* to its *Watershed Management Plan (Plan)* to better understand how the District and the City of Burnsville (City) can work together to protect, preserve, and manage the surface water resources and groundwater within the District.

The section of the *Burnsville 2040* relevant to the District is Chapter 5, “Natural Environment.” Many of the goals and policies found in the *Burnsville 2040* are similar to the goals, policies, and strategies found in the District *Plan*, especially those related to the management of surface waters, groundwater, floodplains, and wetlands. The City relies on several overlay district standards in its zoning ordinance to meet the goals and policies of the *Burnsville 2040*. The following sections describe how the City standards in the ordinance compare to the District regulations on topics of concern to both entities.

## **Construction Erosion Control Standard**

Chapter 8 of the City of Burnsville zoning ordinance addresses all the environmental overlay districts that have been established in the City. Section 10-8-8, “Controlling Erosion and Sediment from Land-Disturbing Activities,” of the chapter states that any land-disturbing activities that involve 90 or more cubic yards of earthwork must comply with the requirements of the section. This standard is more stringent than the District’s Construction Erosion Control Standard, which requires erosion and sediment control measures to meet the requirements of the National Pollutant Discharge Elimination System (NPDES) general permit. An NPDES general permit is required for construction activity that results in land disturbance of equal to or greater than one acre. The City code goes on to state that the erosion and sediment control measures must comply with the most recent regulations of the Minnesota Pollution Control Agency’s (MPCA)

NPDES/State Disposal System permit program. The specific erosion control plan inspection and maintenance requirements in the code closely match the District's erosion and sediment control standards.

## **STORMWATER MANAGEMENT**

In Chapter 8, Section 10-8-11, "Stormwater Management Overlay District Standards," states that "development shall comply with the water resources management plan adopted by the city council in 2002 and any future amendments." The 2017 *Burnsville Water Resources Management Plan* (WRMP) is included as an appendix to the *Burnsville 2040* and was reviewed. The Development Standards included as Appendix C to the WRMP state that any development that disturbs one-half acre or more or creates 5,000 square feet or more of new impervious surface must meet the water quality treatment, volume control, water quantity, and rate control requirements of the WRMP. This standard is more stringent than the District's existing and proposed general Stormwater Management Standard, which requires compliance for development, redevelopment, and drainage alterations (including roads) creating new impervious areas of more than one acre.

The existing District standard requires that 0.5 inches of runoff from development and redevelopment sites must be infiltrated, so the City's requirement is stricter than the District's. However, the District standard is currently being updated, and the proposed standard requires one inch of runoff from new impervious surfaces to be retained on site. The City's water quality treatment requirement for new development and redevelopment includes redeveloping more than 50 percent of the site which is still stricter than the District's proposed standard. However, the City's requirement for redevelopment that includes redeveloping less than or equal to 50 percent of the site is less strict than the District's proposed standard. The proposed District standard does not differentiate between development and redevelopment. If a project creates one acre or more of new impervious surface, one inch of runoff from the new impervious surface must be retained on site.

The City's phosphorus removal requirements are unique to the City's WRMP. The existing District standard does not have any specific phosphorus removal requirements. Instead, it requires water quality stormwater management to comply with the requirements of the MPCA general permit, which has additional requirements if the receiving water of a construction site is impaired by phosphorus. The proposed District stormwater management standard requires that projects have no net increase from existing conditions in total phosphorus and total suspended solids.

The existing and proposed District standard includes the same rate control requirements and constraints on infiltration practices as the City standard.

Section 10-8-10 of Burnsville's zoning ordinance for the shoreland overlay district

contains the following additional stormwater management requirements that the District does not include these guidelines:

1. Where 50 percent or more of the lot area lies within the shoreland overlay district, the maximum impervious surface coverage is 25 percent of the lot area.
2. In certain zoning districts, impervious surface may be increased if the proposed development mitigates additional stormwater runoff to a level consistent with 25 percent impervious surface coverage under a 1.5-inch rainfall design storm.

### **Floodplain Management**

Chapter 10 of Burnsville's zoning ordinance addresses floodplain management. Like the existing and proposed District Floodplain and Drainage Alteration Standard, the City ordinance prohibits placing fill in the floodway that will cause an increase in the 100-year or regional flood or cause an increase in flood damages in the reach or reaches affected. Fill is allowed in the flood fringe if it does not adversely affect the hydraulic capacity of the channel. The cumulative placement of more than 1,000 cubic yards of fill on a parcel is allowable only as a conditional use, unless the fill is specifically intended to elevate a structure. An erosion/sedimentation control plan that clearly specifies methods to stabilize the fill on site for the 100-year flood event must be submitted to the City. Unlike the District, Burnsville does not require fill placed in the flood fringe that causes a rise in the high-water level to be offset by compensatory storage.

Appendix C of the WRMP states that for all structures in the flood fringe, the lowest floor of the structure (including the basement) must be at or above the regulatory flood protection elevation. The regulatory flood protection elevation is defined as one foot above the regional (100-year) flood plus any increase in flood elevation caused by encroachments on the floodplain that result from designation of a floodway (0.5 feet in Minnesota). This means that the lowest floor of structures can't be less than 1.5 feet above the 100-year flood elevation. In contrast, the existing and proposed District standard requires the lowest level of proposed structures be a minimum of two feet above the 100-year flood elevation.

### **Bluff Management**

In the definitions section of the zoning ordinance, a bluff is defined as a topographic feature located in a shoreland area with a slope that drains toward a water body, rises at least 25 feet above the ordinary highwater level of the water body, and has an average slope of 30 percent or more. The bluff impact zone is defined as a bluff and land located within 20 feet from the top of a bluff. The toe and top of the bluff are defined as the lower and higher points of a 50-foot segment with an average slope exceeding 18 percent. Steep slopes are defined as lands having average slopes over 12 percent, as measured over horizontal distances of 50 feet or more, that are not

bluffs.

Section 10-8-6, "Soil Erosion Overlay District Standards," of the zoning ordinance states that a 40-foot building setback must be established along the Minnesota River bluffs. The bluff line is defined as the point at which the slope gradient exceeds 40 percent. It isn't clear whether this building setback and slope gradient, which differ from those defined at the beginning of the ordinance, are meant to be specific to only the Minnesota River bluffs or whether the inconsistencies are errors. Section 10-8-10, "Shoreland Overlay District," of the ordinance requires a structure setback of 30 feet from the top of a bluff, but it also states that structures must not be placed within bluff impact zones (which were earlier defined as a bluff and land within 20 feet from the top of a bluff).

The shoreland section of the zoning ordinance includes the following bluff requirements:

1. Intensive vegetation clearing within bluff impact zones and on steep slopes is prohibited.
2. On steep slopes or within bluff impact zones, a grading and filling permit is required for the movement of more than 10 cubic yards of material (outside of steep slopes and bluff impact zones, a grading and filling permit is not required until more than 90 cubic yards of material are moved).
3. Fill or excavated material must not be placed in bluff impact zones.
4. Roads, driveways, and parking areas must not be placed within bluff impact zones.

The District's existing Bluff Standard's slope threshold is 30 percent or greater and includes aspects of the Minnesota Department of Natural Resources (MnDNR) bluff definition, which tied it to shoreland areas. The District standard includes a 30-foot structure setback requirement, a minimum 50-foot setback for sewage treatment systems, and stormwater features that involve soil saturation. Like the City's, the District's standard does not allow extensive vegetation removal, such as clear-cutting, in the Bluff Impact Zone. Unlike the City's, the District's existing standard prohibits all grading, vegetation removal, and other land-disturbing activities as well.

The District's proposed steep slopes standard includes a Steep Slopes Overlay district based on slopes greater than 18 percent and doesn't restrict structure location in the overlay zone. The District standard does not explicitly prohibit intensive vegetation clearing, although it is strongly discouraged. Land-disturbing activities that involve excavation of 50 cubic yards or more in the Steep Slopes Overlay district require a qualified professional or a professional engineer registered in the state of Minnesota, to certify that the area for the proposed activity, structure, or use is suitable.



## High Value Resource Areas

Most of the wetlands along the Minnesota River within the City of Burnsville are included within the Minnesota Valley National Wildlife Refuge (MVNWR). The Black Dog wetland complex, located south of Black Dog Lake, is a designated calcareous fen. The Black Dog Scientific and Natural Area (BDSNA) is a designated protected area that includes portions of the Black Dog fen. The MVNWR is under the authority of the US Fish and Wildlife Service, and the BDSNA is managed by the MnDNR and the Nature Conservancy. The City has three designated trout streams in the northeast portion of the city, all of which are located within the District boundary and drain into the Minnesota River through Black Dog Lake. The three trout streams include Unnamed Trout Stream Segment #7, One Mile Creek (also identified as Segment #4 and Unnamed Stream #4), and a very small portion draining into Harnack Creek (Harnack Creek is also identified as Segment #1 or Unnamed Stream #1).

Black Dog fen and the trout streams are fed by groundwater from natural springs. The *Burnsville 2040* states that limiting the amount of impervious surface cover and reducing stormwater discharge volume is critical for maintenance of these cold-water-dependent resources. The City also recognizes that encouraging natural infiltration of stormwater is important in protecting surface water features that depend on groundwater. Therefore, the City's WRMP stresses incorporating infiltration to the maximum extent practicable, as discussed previously.

Appendix C of the City WRMP includes the following requirements for special waters and wetlands:

1. Sites discharging to Trout Streams #1, #4, or #7 must incorporate BMPs that address runoff temperature requirements, maintain an undisturbed buffer zone of at least 100 feet between the project site and the trout stream, and cover exposed slopes that are steeper than 3:1 (H:V) within three days of the disturbance.
2. Horizontal vegetated buffer zones shall be established and/or maintained around existing wetlands and stormwater treatment ponds. New development and redevelopment projects shall provide a buffer zone around wetlands in accordance with the requirements in the City's *Wetland Protection and Management Plan*.
3. Water level fluctuations in wetlands shall be managed in accordance with the City's *Comprehensive Wetland Protection and Management Plan*. A rise (bounce) in elevation greater than 12 inches during a 10-year storm shall be avoided.
4. New discharge points to all wetlands and waters must include pretreatment. New direct discharges to Management II wetlands must have at least grit removal prior to discharge.

The District is home to several rare fens and sensitive trout waters. The specific hydrologic and chemical requirements of fens and trout waters make them especially sensitive to sedimentation, stormwater runoff, and changes to groundwater level and quality. It is the District's policy to prevent resource degradation due to erosion and sedimentation and protect and improve natural resources within the watershed to halt further degradation. This is especially true for high-value resources such as fens and trout waters. The existing District *Plan* does not include any standards specific to fens or trout waters. According to the existing *Plan*, fen protection in the District is regulated under MN Rule 7050, "Non-degradation for outstanding resource value waters," which is administered by the MPCA. Trout streams within the District are managed by the MnDNR.

The establishment of stricter protections for areas contributing runoff to a trout water or fen (referred to as high value resource areas [HVRA] in the proposed District standards) is critical for preventing further destruction of these unique and irreplaceable resources.

The proposed District standards include stricter requirements for HVRAs. The District Erosion and Sediment Control standard, which normally applies to land-disturbing activities of one acre or more, applies to the alteration or removal of 5,000 square feet or more of surface area or the excavation of 50 cubic yards or more of earth within HVRAs. Similarly, the District Stormwater Management standard, which normally applies to development, redevelopment, and drainage alterations (including roads) that create new impervious areas greater than one acre, applies to new impervious areas greater than 10,000 square feet in HVRAs.

## **Groundwater**

The *Burnsville 2040* states that the most sensitive areas with the shortest lengths of time required for surface water to infiltrate to the aquifer in the City of Burnsville are generally located in the outwash terraces along the bluff line and in the floodplain. A large area that extends from just east of I-35W to the Savage border between Highway 13 and the river, as well as a smaller floodplain area in the Black Dog Preserve east of I-35W, possesses very high sensitivity ratings, indicating that waterborne contaminants can travel from the surface to the aquifer in as little as a few hours to a few months.

Studies indicate the Minnesota River and river valley serve as groundwater discharge areas rather than recharge areas. In other words, the natural groundwater in this area flows from the glacial overburden and St. Peter and Prairie du Chien-Jordan aquifers into the river and associated river valley lakes, wetlands, and springs rather than from the surface downward into the aquifers. This natural direction of flow limits the transmission of contaminants downward into the deeper aquifers and, instead, tends to divert surface them into the Minnesota River.

The City recognizes that groundwater sustainability is an emerging issue. The community requires a safe and reliable source of drinking water, which makes it essential to preserve and protect the groundwater aquifers that supply the City's drinking water. Burnsville has developed a groundwater model that focuses on the Burnsville well field, Kraemer Quarry, and Black Dog and Savage fens. The model will be used in the design of groundwater withdrawal and the minimization of impacts to protected surface waters. The *Burnsville 2040* also recognizes that restoring wetlands is an important part of promoting groundwater recharge.

Section 10-8-12, "Drinking Water Protection Overlay District," of the zoning ordinance includes performance standards intended to protect groundwater from contamination. The ordinance addresses proper location and construction of wells; necessary modifications and reconstruction; operation, maintenance, and repair; permanent sealing; and annual maintenance permitting, including registered used and unused wells. The ordinance does not, however, address the issue of groundwater quantity. Excessive consumption of drinking water for uses that do not require drinkable water quality can threaten the long-term supply of drinking water. It is unclear whether groundwater supplies are adequate in some areas of the County to meet drinking water demand. In addition, a sustainable, nonfluctuating supply of groundwater is required to maintain water levels and soil chemistry in fens and temperature in trout waters. The county's storm sewer system ordinance does stress incorporating infiltration to the maximum extent practicable and requires the runoff volume from 1.1 inches of rainfall from the new and/or redeveloped impervious surfaces to be treated by infiltration practices.

## **Potential Projects for Partnering with the District**

### **Capital Improvements Plan, 2018–2022**

- Trout Stream #4 Restoration – The MnDNR and MN Trout Unlimited are considering rehabilitating a trout stream near the Cedarbridge area in an existing stream. The City may need to make storm sewer and drainage improvements in the existing system to help the stream become a viable trout habitat. This project is not being led by the City but may include some improvements to the City's drainage system or be used for cost sharing on the project (\$10K – 2018).
- Resiliency Assessment of Major Drainage Systems – This assessment includes a review of the City's major drainage system to identify areas where failure of the system would necessitate expensive repair in a short time and/or cause significant damage to private buildings. These high-risk areas will be identified to aid staff in planning future improvements (\$40K – 2018).
- Resiliency Improvements – This project is designed to provide improvements for the highest-risk systems identified through the resiliency assessment of major

drainage systems (\$350K – 2019).

- Keller Lake to Minnesota River Water Level Hydrologic and Hydraulic Analysis and Report – Analysis of the chain of water bodies that starts at Keller Lake and ends at the Minnesota River to identify adjustments that could be made to optimize water levels in the system (\$75K – 2019).
- Minnesota River Quadrant (MRQ) Stormwater and Floodplain Study and Report – Analysis of the overall stormwater management system needs for the MRQ to accommodate future development. The report will guide the review of future developments in the MRQ to optimize the location of future stormwater management facilities (\$50K – 2022).
- Bluff Area Risk Analysis – Analysis of the bluffs within the City to identify areas where the risk of failure is high or where the failure of which would lead to public safety risk or create a significant expense in a short time. This study would aid in the planning of related improvements in future capital improvement plans and future maintenance operations to proactively prevent slope failure (\$50K – 2018).
- Ravine Restoration – Analysis of ravines to target those most in need of maintenance and then to fund their repair to prevent loss of soils retaining property values and reduce off-site deposit of these soils (\$500K – 2019, \$500K – 2021).

## SUMMARY

The District commends the City for developing a thoughtful and thorough comprehensive plan. The City clearly takes pride in its efforts to conserve and protect natural resources. A comparison of the *Burnsville 2040* to the District's *Watershed Management Plan* shows that the City and the District share several goals in efforts to preserve and manage surface water resources and groundwater.

The following recommendations are suggested for inclusion in the *Burnsville 2040* to strengthen the City's plan and to better align the *Burnsville 2040* with the District's existing and proposed standards:

- In Title 10, Chapter 10, "Floodplain Regulations":
  - Require the lowest level of proposed structures to be a minimum of two feet above the 100-year flood elevation.
  - When the placement of fill in the 100-year floodplain causes a rise in the 100-year flood elevation, require the creation of compensatory floodplain storage equal to or greater than the volume of fill placed.
- In Title 10, Chapter 8, "Environmental Overlay Districts":
  - Refine the definition of bluff so it is the same throughout the chapter and better matches the District's proposed Steep Slopes standard, which has

replaced “bluff” with “steep slope” and defines it as a natural topographic feature having average slopes of 18 percent or greater over a horizontal distance of 25 feet or more.

- Remove the requirement that a bluff (or steep slope, if the term is changed) must be in a shoreland area. Correspondingly, shift the bluff management information in Chapter 8, Section 10, “Shoreland Overlay District,” to an alternative location in Chapter 8.
- Identify all steep slope (bluff) protection measures in a single overlay district—for example, the Soil Erosion Overlay District Standard. In Appendix C of the City’s *Water Resources Management Plan*, Development Standards:
  - Define and include fens in Section 6, “Special Waters and Wetlands.”
  - On land that contributes runoff to a trout water and/or fen, require a higher level of protection by applying the standards of the water quality treatment, volume control, water quantity, and rate control requirements in the WRMP to any development that includes disturbing 5,000 square feet or more of surface area, excavating 50 cubic yards or more of earth, or creating more than 10,000 square feet of new impervious area.

The District looks forward to future partnerships with the City as we work to complete potential projects that meet our common goal of reducing the flow of pollutants and sediment to the Minnesota River and protecting, preserving, and managing our shared surface and groundwater resources.

cc: Jeff Thuma, Burns & McDonnell

# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 16, 2018

Re: Dodge of Burnsville – Project Review

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The plan sheets and stormwater management calculations for the Dodge of Burnsville Out-Lot Redevelopment Project (Project) were reviewed as requested by the Lower Minnesota River Watershed District (District).

The existing Dodge of Burnsville site is located southeast of the West 121st Street and Interstate 35W South Frontage Road intersection in Burnsville, Minnesota. The Project proposes a parking lot expansion that would add the adjacent lot to the southeast of the existing Dodge of Burnsville site. The adjacent lot would be used for vehicle inventory storage for the existing Dodge of Burnsville site.

The existing adjacent lot is zoned as park land and is used as an archery site. The proposed Project will add 1.05 acres of new impervious area to the adjacent site and 0.90 acres of new impervious area to the existing Dodge of Burnsville site to provide access to the out-lot site.

The proposed Project triggers the following District standards: Stormwater Management and Construction Erosion Control.

## **STORMWATER MANAGEMENT STANDARD**

### 1. Rate Control:

- a. The proposed development activity will not increase the peak stormwater runoff rate from the site under predevelopment conditions for anything less than a 24-hour precipitation event with a return frequency of 1 or 2, 10, and 100 years. Predevelopment is defined as land use on a site immediately prior to the proposed alteration/activity.

- b. The Project must comply with the requirements of the Minnesota Pollution Control Agency's (MPCA) National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities.

2. Volume Control:

- a. Stormwater runoff volume retention shall be achieved onsite in the amount equivalent to the runoff generated from 0.5 inches of runoff over new impervious surfaces of the redevelopment or development.
- b. To achieve the volume control regulation, infiltration must be used where practicable. Filtration is an acceptable alternative for soil types from hydrologic soil groups C and D or when infiltration is infeasible.

3. Water Quality:

- a. Water quality stormwater management must comply with the requirements of the NPDES General Permit for Construction Activities.

## **CONSTRUCTION EROSION CONTROL STANDARD**

1. Erosion and sediment control measures shall meet the standard for the NPDES General Permit for Construction Activities as amended, except where more specific requirements are provided.
2. All onsite stormwater conveyance channels shall be designed and constructed to withstand, after construction, the expected velocity of flow from a 10-year frequency storm without erosion.

### Conclusions:

1. Runoff from the proposed out-lot will be routed to an infiltration basin at the southwest corner of the out-lot. This basin will outlet to the west to a second infiltration basin, which drains through a new PVC pipe connected to an existing catch basin connected to the city storm sewer system.
2. The portion of the archery range that previously drained to the railroad ditch will be routed to the infiltration basins.
3. Stormwater Management Standard Compliance:
  - a. Rate Control: According to the stormwater management calculations, there is no increase in the peak runoff rates to the existing storm sewer

system or overland to the northeast for the 2-, 10-, and 100-year storm events.

- b. Volume Control: The stormwater runoff volume retained onsite by the infiltration basins is equal to the runoff generated from 1.1 inches of runoff over the area of the new impervious surfaces and 0.55 inches of runoff over the area of the redeveloped impervious surfaces, per the City of Burnsville requirements. These requirements are more stringent than the District requirement because they require retention more water than the District requires.
  - c. Water Quality: The infiltration basins are intended to perform the required water quality function. This satisfies the water quality requirements of the MPCA NPDES General Permit for Construction Activities.
4. Construction Erosion Control Standard:
- a. The proposed erosion and sediment control measures shown on Sheet C3 of the plans meet the requirements of the MPCA NPDES General Permit for Construction Activities.
  - b. The proposed onsite storm sewer is designed for a 10-year frequency design storm per the City of Burnsville's requirements.

A small area in the northwest corner of the existing Dodge of Burnsville site is mapped as "Shaded Flood Zone X—Other Flood Areas" on Flood Insurance Rate Map Number 27037C0070E, dated December 2, 2011. Areas designated as "Zone X—Other Flood Areas" are defined as areas of 0.2 percent annual chance flood, areas of 1 percent annual chance flood with average depths less than 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from the 1 percent annual chance flood. The remaining portion of the existing Dodge of Burnsville site and the entire adjacent site are mapped as Zone X—areas determined to be outside the 0.2 percent annual chance floodplain. The proposed construction is located entirely in Zone X, so the Project does not trigger the District Floodplain and Drainage Alteration Standard.

The information provided sufficiently satisfies the District's requirements. If significant changes are made to the Project, the Project proposed must update calculations and send a narrative to the District expressing how the Project will maintain compliance with applicable District standards.

CC: Sarah Arnold, City of Burnsville  
Mark Saba, Dodge of Burnsville  
Jeff Thuma, Burns & McDonnell





# Technical Memorandum

To: Linda Loomis, Administrator

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

Date: May 16, 2018

Re: DNR Water Appropriation #2018-1639, Chaska L71 Lift Station (Review)

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The Minnesota Department of Natural Resources (MNDNR) Permitting and Reporting System Water Appropriation Permit Application (MPARS Application) and the dewatering layout for the Chaska L71 Lift Station Project (Project) were reviewed as requested by the Lower Minnesota River Watershed District (District).

The proposed Project is located southeast of the East 2nd Street and Beech Street intersection in Chaska, Minnesota. The Project proposes lowering the groundwater level temporarily for construction dewatering to allow for the installation of a new manhole near the Chaska L71 Lift Station. Water will be pumped from an existing set of three wells installed at a depth of 40 feet below the ground. The pumped water will be discharged into an existing storm sewer manhole approximately 50 feet southwest of the wells. The manhole drains directly to the Minnesota River. The proposed Project triggers the District Water Appropriations Standard, as discussed below.

## **WATER APPROPRIATIONS STANDARD**

- A. In all cases of appropriation of surface or groundwater requiring a DNR appropriation permit in or near the District, a copy of the permit application and information on the location of the discharge/withdrawal must be filed with the District for its review.
- B. The effect of the proposed appropriation must be defined for consideration by the District.

## Conclusions

### Water Appropriations Standard Compliance

- a. A copy of the DNR Water Appropriation Permit Application and the dewatering layout were received by the District via email from Dan Scollan, an MNDNR Groundwater Protection Hydrologist.
- b. The email included the following information about previous dewatering related to construction of the new lift station:

“Past dewatering to allow construction of the new L71 Lift Station was conducted under DNR Individual Water Appropriation Permit #2015-2154, by a different contractor. Monitoring of lake levels in nearby Courthouse Lake was required by the previous permit. The applicant, however, has reported no impacts to the water level of Courthouse Lake from past dewatering operations.”

It is not clear whether the requirement to monitor the level of Courthouse Lake will be included as part of the forthcoming permit. If monitoring will not be required because no impacts to the water level of Courthouse Lake were reported during previous dewatering operations, we request the following information about the previous dewatering operations before the Project can satisfy the District’s requirements:

1. Total volume of water pumped
2. Maximum rate of pumping
3. Depth water was pumped from (well depth)
4. Dates of dewatering

If the provided information shows that previous dewatering operations were of greater magnitude than those of the proposed Project, and it is clear that the effects of the proposed pumping will not affect the water level of Courthouse Lake, the District should be reassured that the proposed Project will not negatively affect groundwater in the vicinity of the project.

Once the requested information is provided and reviewed, the District’s requirements will be satisfied. If significant changes are made to the Project, information must be provided to the District to express how the Project will maintain compliance with applicable District Standards.

cc: Dan Scollan, MNDNR  
Jeff Thuma, Burns & McDonnell