

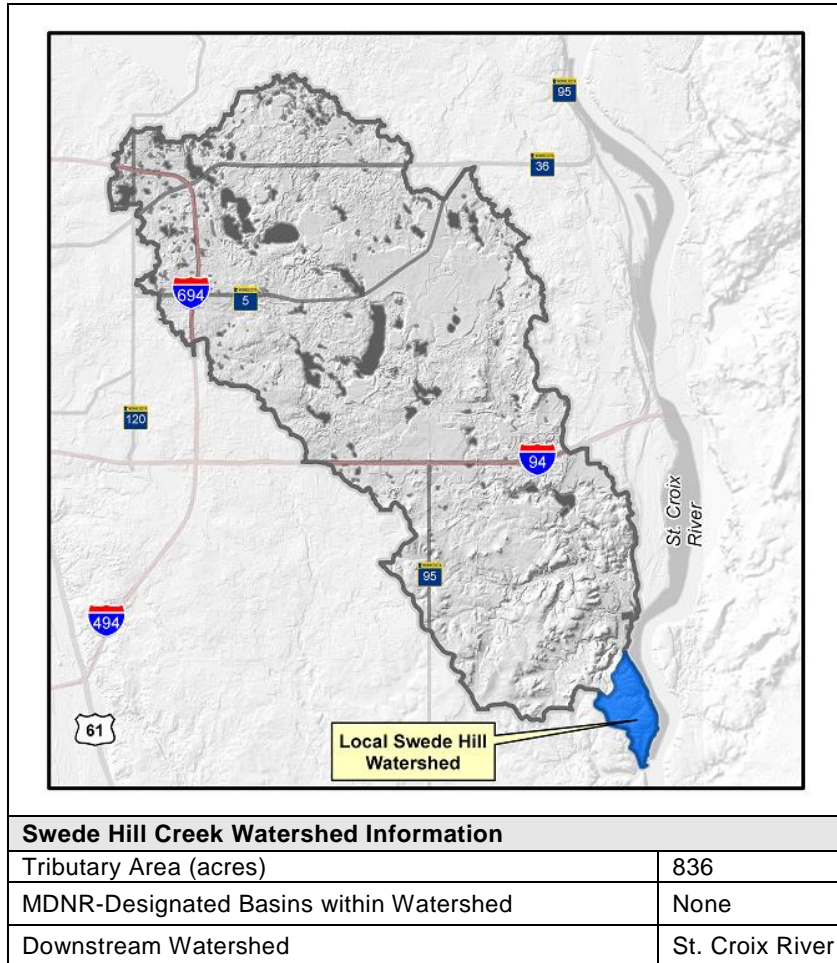
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5.38 Swede Hill Creek Watershed Management Plan

5.38.1 General Information



The Swede Hill Creek watershed contains several steep-sided ravines and bluffs that drain directly to the St. Croix River. There are no perennial streams, MDNR public waters, or other significant waterbodies in the watershed.

The Swede Hill Creek watershed has a drainage area of 836 acres, or approximately 1.3 square miles. Most of the watershed is undeveloped and heavily forested. Current (2010) land use in the watershed includes scattered single family residential land use, agricultural land use in western portion of the watershed, and park use (Afton State Park) in the southern portion of the watershed. Estimated future (2030) land use in the

watershed includes rural or large-lot residential land use in all areas of the watershed except the southern end, which is expected to remain park land. Current (2010) and estimated future (2030) land use in the Swede Hill Creek watershed is presented in Figure 5.38-1.

5.38.2 Water Quality Management Plan

Although there are no surface water bodies within the Swede Hill watershed, its location along the banks of the St. Croix River adds to the importance of maintaining high water quality. Being directly tributary to the St. Croix River, stormwater runoff from this watershed will directly impact river water quality, and there may be limited opportunities for treatment prior to discharge. Because of this, the VBWD will continue to enforce its Rules and Regulations (2013, as amended) within the Swede Hill Creek watershed. The VBWD Rules and Regulations are included as Appendix A-4.5 to this Plan.

5.38.2.1 Water Quality Implementation Plan

The VBWD plans to undertake the following specific water quality implementation tasks for the Swede Hill Creek watershed:

1. The VBWD will perform a spring and erosion inventory to identify areas of special concern with regards to karst geology and potential locations for ravine and gully stabilization in the Swede Hill Creek watershed.
2. Pending the results of the spring and erosion inventory, the VBWD will perform a feasibility study of slope and bluff stabilization options.
3. If necessary, the VBWD will implement stream bluff stabilization projects in the Swede Hill Creek watershed, as identified by the erosion inventory and stabilization feasibility study.

The geologic and topographic features within the Swede Hill Creek watershed merit additional management considerations when the VBWD designs or reviews projects in this watershed. The VBWD will apply the following management standards, which are adapted from the *LSCWMO Watershed Management Plan* (EOR 2009) and *Kelle's Coulee Stream Management Plan* (EOR 2007b).

1. For projects disturbing steep slopes, erosion control measures must be installed at 75-foot intervals along steep slopes. Such slopes must be protected with temporary or permanent erosion control within seven days of disturbance.
2. Projects proposing stormwater facilities in karst sensitive areas should follow the management guidelines included in the *LSCWMO Karst Feature Inventory and Management Plan* (EOR 2007a), the Minnesota Stormwater Manual (MPCA, 2008, as amended) or other applicable guidance documents, in addition to complying with the VBWD Rules and Regulations (2013, as amended).

5.38.2.2 Water Quality Issues

The VBWD has not collected any water quality or biological data within the Swede Hill Creek watershed. The undeveloped nature of the watershed and large areas of forest and grassland result in low levels of imperviousness and valuable wildlife habitat. Streambank and ravine erosion has been reported in the Swede Hill Creek watershed, as discussed in the *LSCWMO Watershed Management Plan* (EOR 2009).

The largest threats to surface water quality in the watershed are development and poor vegetation management. Increased runoff from development has the potential to carry excessive nutrients and contaminants to the stream, as well as increase erosion into and within the stream. Appropriate stormwater management practices and maintenance of vegetated buffers between developed areas and the stream will reduce these risks.

5.38.3 Water Quantity Management Plan

The City of Afton's local water management plan identifies runoff from the bluffs adjacent to the St. Croix River as a source of flooding present in the Swede Hill Creek watershed (WSB, 2011). Runoff from the bluffs has caused damage to city infrastructure and has seeped into residents basements, causing property damage. The City of Afton held a public task force meeting to address flooding issues including bluff runoff.

The VBWD Managers will continue to determine the appropriate level of VBWD involvement in local and regional flooding issues on a case by case basis. If requested by the City of Afton, the VBWD may support the city's efforts to address these flooding issues. VBWD support could include assisting the city in evaluating solutions, obtaining funding, or other means in accordance with the policies of the VBWD (see Section 4.7).

5.38.4 References

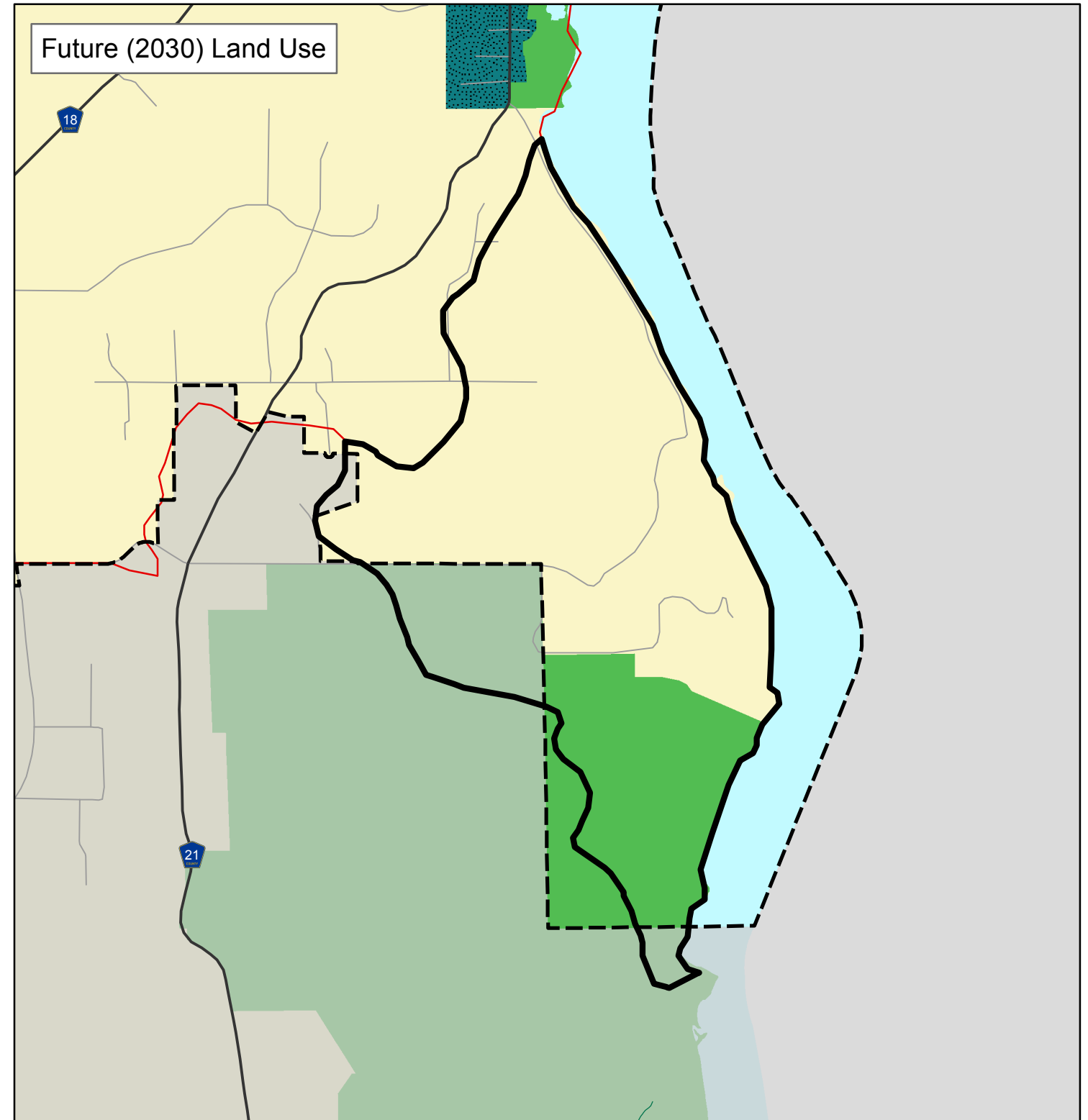
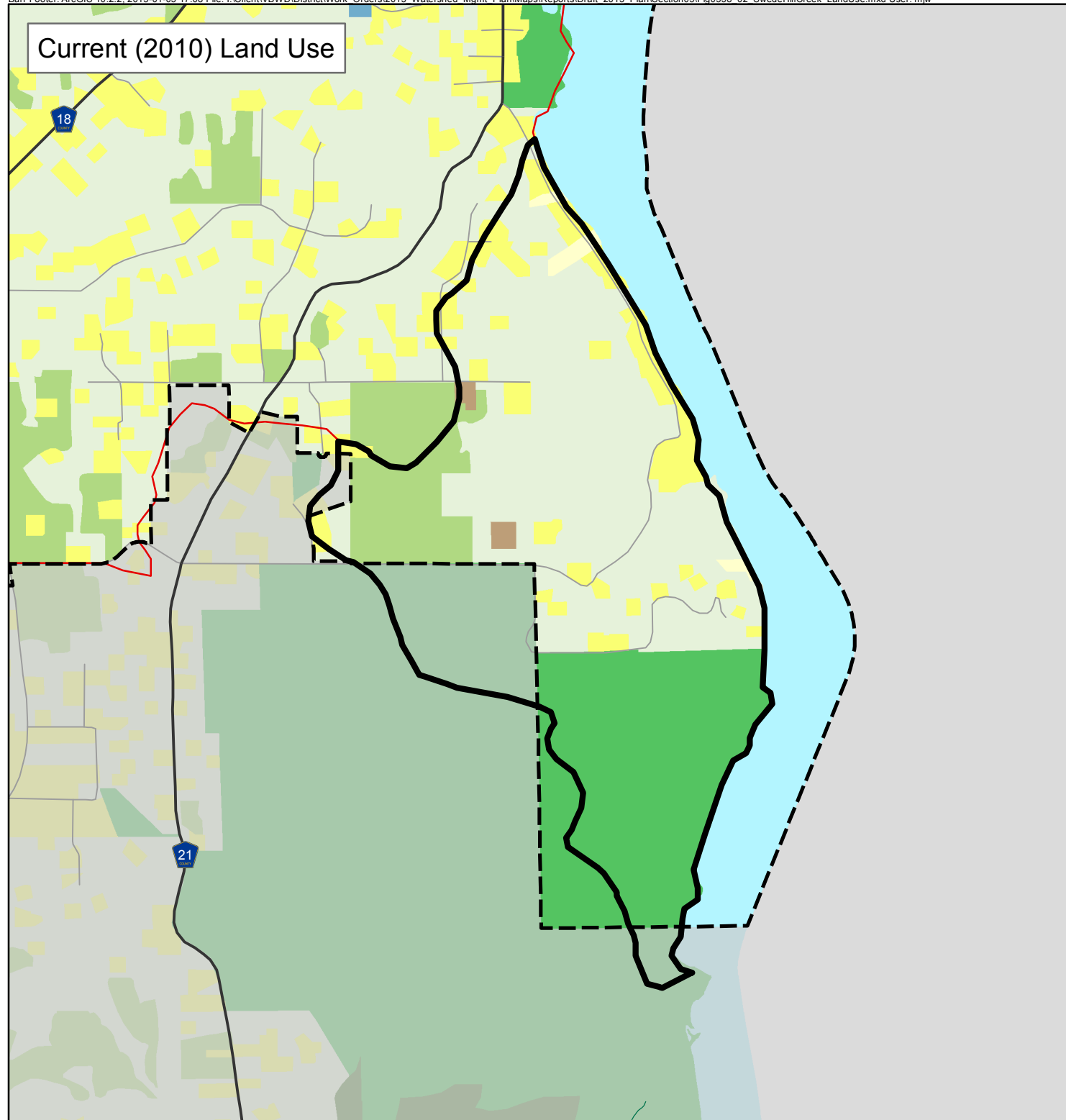
Emmons & Olivier Resources (EOR). June 2007. *Karst Feature Inventory & Management Plan, Lower St. Croix Watershed Management Organization.*

Emmons & Olivier Resources (EOR). December 2007. *Kelle's Coulee Stream Management Plan, Lower St. Croix Watershed Management Organization.*

Emmons & Olivier Resources (EOR). February 2009. *LSCWMO Watershed Management Plan, Lower St. Croix Watershed Management Organization.*

Minnesota Pollution Control Agency (MPCA). January 2008. *Minnesota Stormwater Manual, Version 2.*

WSB and Associates, Inc. 2011. *Surfacewater Management Plan.* Prepared for the City of Afton.



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| Current (2010) Land Use | Office | Golf Course | Swede Hill Creek Subwatershed |
| Farmstead | Mixed Use Residential | Major Highway | Major Subwatershed Boundary |
| Seasonal/Vacation | Mixed Use Industrial | Railway | VBWD Legal Boundary |
| Single Family Detached | Mixed Use Commercial and Other | Airport | |
| Manufactured Housing Park | Industrial and Utility | Agricultural | |
| Single Family Attached | Extractive | Undeveloped | |
| Multifamily | Institutional | Water | |
| Retail and Other Commercial | Park, Recreational or Preserve | | |

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|--------------------------------|-------------------------------|-----------------------------|-------------------------------|
| Future (2030) Land Use | Industrial | Rights-of-Way (i.e., Roads) | Swede Hill Creek Subwatershed |
| Agricultural | Institutional | Railway (inc. LRT) | Major Subwatershed Boundary |
| Rural or Large-Lot Residential | Mixed Use | Airport | VBWD Legal Boundary |
| Single Family Residential | Multi-Optional Development | Vacant or Unknown | |
| Multifamily Residential | Park and Recreation | Open Water | |
| Commercial | Open Space or Restrictive Use | | |



1 inch = 2,000 feet

Figure 5.38-1

**SWEDE HILL CREEK WATERSHED
CURRENT (2010) AND FUTURE (2030) LANDUSE**
2015-2025 Watershed Management Plan
Valley Branch Watershed District