LOWER MINNESOTA RIVER
WATERSHED DISTRICT

Executive Summary for Action

Lower Minnesota River Watershed District Board of Managers Meeting
Wednesday, August 21, 2024

Agenda Item
Item 6. C. – Flying Cloud Airport Project (LMRWD No. 2024-016)

Prepared By
Linda Loomis, Administrator

Summary
Flying Cloud Airport has applied for a permit to make improvements that will increase the impervious surface at the airport. Young Environmental Consulting Group has reviewed the application and accompanying documentation on behalf of the LMRWD. Findings of the review and a recommendation can be found in Technical Memorandum – Flying Cloud Airport Project (LMRWD No. 2024-006) dated August 14, 2024.

Attachments
Technical Memorandum – Flying Cloud Airport Project (LMRWD No. 2024-006) dated August 14, 2024

Recommended Action
Motion to conditionally approve a permit for Flying Cloud Airport Project (LMRWD No. 2024-006 contingent upon the receipt of an executed maintenance agreement and documentation that the project has been approved by the City of Eden Prairie. The approved permit will have the following stipulation:

- Field verification of infiltration rates of the existing infiltration basins. If minimum infiltration rates that are used within the Hydro CAD model provided with the application cannot be achieved on-site, replacement or soil amendment will be required.

Technical Memorandum

Young Environmental Consulting Group, LLC

To: Linda Loomis, Administrator
Lower Minnesota River Watershed District (LMRWD)

From: Erica Bock, Water Resources Scientist
Hannah LeClaire, PE, Water Resources Engineer

Date: August 14, 2024

Re: Flying Cloud Airport Project (LMRWD No. 2024-016)

The Flying Cloud Airport, managed by Metropolitan Airports Commission (MAC), has applied for an individual project permit from the LMRWD to complete reconstruction of roads, maintenance of aprons, parking lot, and access driveways. The project is located at 9960 Flying Cloud Drive, in Eden Prairie, MN (Figure 1). The applicant's engineer, SEH, submitted the permit application, associated application exhibits, and construction plans for the Flying Cloud Airport Project.

The project proposes new and reconstructed impervious surfaces, which consists of removing existing pavement and base material and replacing it with geotextile fabric, aggregate base, bituminous pavement, concrete, and turf establishment. The project will disturb 2.07 acres and proposes 1.78 acres of new and reconstructed impervious surfaces.

The project is not located within the High Value Resource Area, Steep Slopes Overlay District, or the 100-year floodplain. The applicant proposes to begin construction in August 2024, following permit approval. The project proposes to use existing infiltration best management practices (BMPs) (Figure 2 and Figure 3) for stormwater management. The applicant has submitted the necessary materials and hydrologic and hydraulic analyses to show existing rate, volume, and water quality benefits of the existing infiltration basins. Because the City of Eden Prairie does not have their municipal permit, the project requires an LMRWD Individual Project Permit. The project triggers LMRWD Rule B—Erosion and Sediment Control and Rule D—Stormwater Management.

SUMMARY

Project Name: Flying Cloud Airport

Purpose: Road widening, road and pavement reconstruction

Project Size:

Area Disturbed	Existing Impervious	Proposed and Reconstructed Impervious
2.07 acres	1.77 acres	1.78 acres

Location: 9960 Flying Cloud Drive, Eden Prairie, MN 55347

LMRWD Rules: Rule B – Erosion and Sediment Control
Rule D – Stormwater Management

Recommended Board Action: Conditional approval

DISCUSSION

The LMRWD received the following documents for review:

- LMRWD permit application; received July 23, 2024.
- Authorization of Agent Form, dated August 2, 2024; received August 2, 2024.
- Flying Cloud Airport Cover Letter, by SEH, dated July 23, 2024; received July 23, 2024.
- Stormwater Management Figure, by SEH, dated July 18, 2024; received July 23, 2024.
- South Basin Figure, by SEH, dated July 19, 2024; received July 23, 2024.
- North Basin Figure, SEH, dated July 19, 2024; received July 23, 2024.
- Flying Cloud Airport Web Soils Survey, dated July 15, 2024; received July 23, 2024.
- Geotechnical Report by Element, dated November 15, 2018; received July 23, 2024.
- Revised HydroCAD Model and Report; received August 2, 2024.
- MIDS Model and Report; received July 23, 2024.
- Draft Maintenance Agreement; received July 23, 2024.
- National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit, dated July 2, 2024; received July 23, 2024.
- Project construction plans, by SEH, dated March 18, 2024; received July 23, 2024.
- Revised Erosion and Sediment Control Plan, by SEH; received August 2, 2024.

The application was deemed complete on August 2, 2024, and the documents received provide the minimum information necessary for permit review.

Rule B – Erosion and Sediment Control

The LMRWD regulates land-disturbing activities that affect one or more acres under Rule B. The proposed project would disturb approximately 2.07 acres within the LMRWD boundary. The applicant has provided an erosion and sediment control plan and a Stormwater Pollution Prevention

Plan (SWPPP). Temporary erosion and sediment control measures include storm drain inlet protection, silt fence, and sediment control logs. The pervious areas will be restored with turf grass. The contractor is responsible and liable for inspection and maintenance of erosion and sediment control (ESC) features and their contact information is below.

Contractor and ESC Contact:

- Northwest Asphalt, Lance Guentzel, 952-292-8380, lguentzel@northwest-totalsite.com.

The applicant provided a copy of the NPDES construction stormwater permit. The project complies with Rule B.

Rule D – Stormwater Management

The project proposes a total of 1.78 acres of new and reconstructed impervious surfaces. To treat the new and reconstructed impervious surfaces, Flying Cloud Airport proposes to use existing stormwater management systems on-site, consisting of two previously constructed infiltration basins. To evaluate the ability of the basins to meet the LRMWD requirements, the applicant submitted a HydroCAD model and a MIDS model. The LMRWD reviewed the basins' ability to treat all impervious surfaces draining to these two basins.

Section 5.4.1 of Rule D requires applicants to demonstrate no increase in the proposed runoff rates compared to existing conditions. Stormwater leaves the airport property from three catchments; two to the existing infiltration basins and one to storm sewer.

Table 1. Flying Cloud Airport Runoff Rate Summary

Rainfall Event (24-hour depth)	South Basin Existing	South Basin Proposed	North Basin Existing	North Basin Proposed	Romeo Lane Existing	Romeo Lane Proposed
2-year (2.86")	0 cfs	**0 cfs**	0 cfs	**0 cfs**	8.04 cfs	**8.04 cfs**
10-year (4.26")	0 cfs	**0 cfs**	0 cfs	**0 cfs**	52.76 cfs	**52.76 cfs**
100-year (7.43")	0 cfs	**0 cfs**	0 cfs	**0 cfs**	212.03 cfs	**212.03 cfs**

The reported runoff rates show no change from existing to proposed conditions, which was anticipated because there was no change in land use and a total increase of 0.1 new impervious acres.

Section 5.4.2 of Rule D requires projects to retain 1 inch of runoff from the new and fully

reconstructed impervious areas. There are 1.78 acres of proposed new and reconstructed impervious area. Therefore, the project must provide 0.15 acre-feet of volume retention to meet Rule D requirements for the project. However, because the infiltration basins have not been evaluated by the LMRWD yet, the basins are required to have capacity to treat the entirety of the impervious area draining to them. This was evaluated with a HydroCAD model, and the storage modeled within the basins. Geotechnical reports and soil borings were submitted to validate the infiltration rates used by the HydroCAD model; however, field verification of infiltration rates during construction will be required as a final permit stipulation.

Table 2. Flying Cloud Airport Volume Control Summary

BMP	Impervious Acres in Drainage Area	Required Storage (1" times impervious)	Storage Provided[1]	Storage Up to 48-hour drawdown time[2]
South Basin	11.98 acres	1.00 acre-feet	27.25 acre-feet	1.52 acre-feet
North Basin	49.51 acres	4.13 acre-feet	48.32 acre-feet	6.54 acre-feet

The project's volume control has been achieved through storage in the existing infiltration basins, and the project complies with Rule D volume requirements.

Section 5.4.3 of Rule D requires a no net increase in total phosphorus (TP) or total suspended solids (TSS) to receiving waterbodies when compared to existing conditions. The applicant proposes to meet the water quality requirements using the two existing infiltration basins. Because there was minimal change (+0.1 next increase) in impervious surfaces and no change in land use, there was no change in water quality; however, the basins were evaluated to determine their current pollutant removal efficiency. Water quality calculations were completed using a MIDS model and the supporting documentation was submitted. The MIDS model evaluates the TSS and TP loading the infiltration basin, and results are reported as a whole. The LMRWD does not have a 48-hour drawdown requirement, but the basins were modeled to only show TSS and TP removal requirements for treatment depths up to a 48-hour drawdown time and the basins treat more water.

[1] This is the storage provided before the pond would begin to discharge from the infiltration basins. According to the applicant, there has been no issues with flooding on-site. According to the HydroCAD model, no stormwater discharges from the infiltration basins for the 100-year storm event.
[2] The 48-hour draw-down time is a requirement by the MPCA, not the LMRWD; however, it shows the existing infiltration basins, meet the current requirements of the MPCA as well.

Table 3. Flying Cloud Airport Water Quality Summary

	TP (lb/yr)	TSS (lb/yr)
Pollutant Loading	143	26,052
Pollutant Removed by BMPs	137	24,868
% Reduction	96%	95%

As presented, the pollutant load is reduced for both TP and TSS for the Flying Cloud Airport, meaning the project meets the water quality requirements established under Rule D.

Recommendations

Based on review of the project, we recommend conditional approval of construction at Flying Cloud Airport with field verification of infiltration rates, contingent on the receipt of the following:

- Executed maintenance agreement.
- Documentation of approval from the City of Eden Prairie.

The approved project permit will have the following stipulation:

- **Verification of infiltration rates:** The LMRWD will require field verification of infiltration rates of the existing infiltration basins. If minimum infiltration rates that are used within the HydroCAD model cannot be achieved on-site, replacement or soil amendment will be required.

Attachments

- Figure 1—Flying Cloud Airport Project Location Map
- Figure 2—Flying Cloud Airport South Infiltration Basin
- Figure 3— Flying Cloud Airport North Infiltration Basin

Figure 1: Flying Cloud Airport Project Location
LMRWD No. 2024-016

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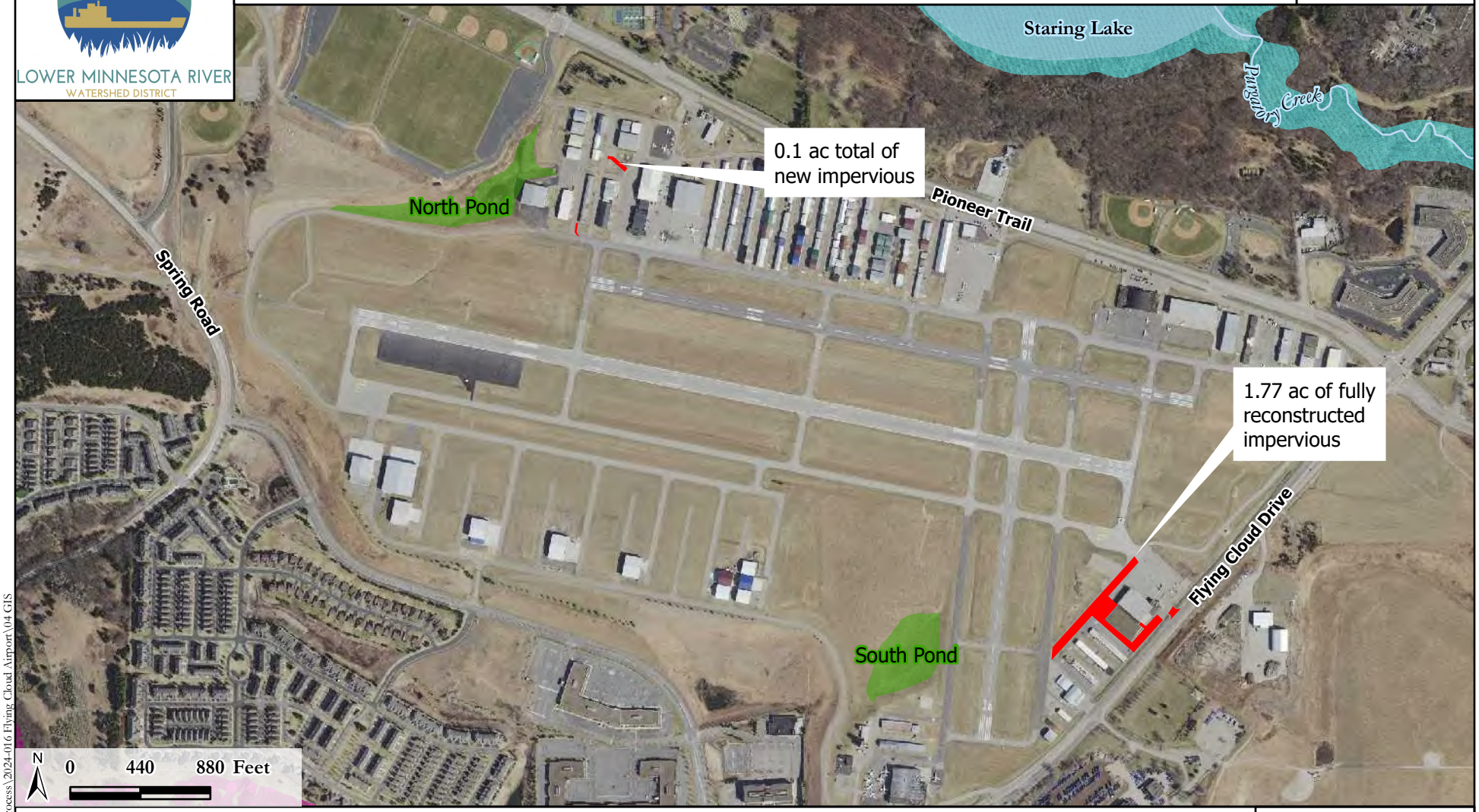

Legend

- Stormwater BMP
- New & Reconstructed Impervious
- Public Waters
- Public Waterbodies
- Steep Slope Overlay District
- 100-yr Floodplain

Location Map

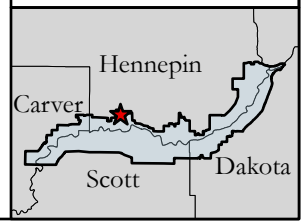

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Figure 2: Flying Cloud Airport Tango Pavement Reconstruction
LMRWD No. 2024-016

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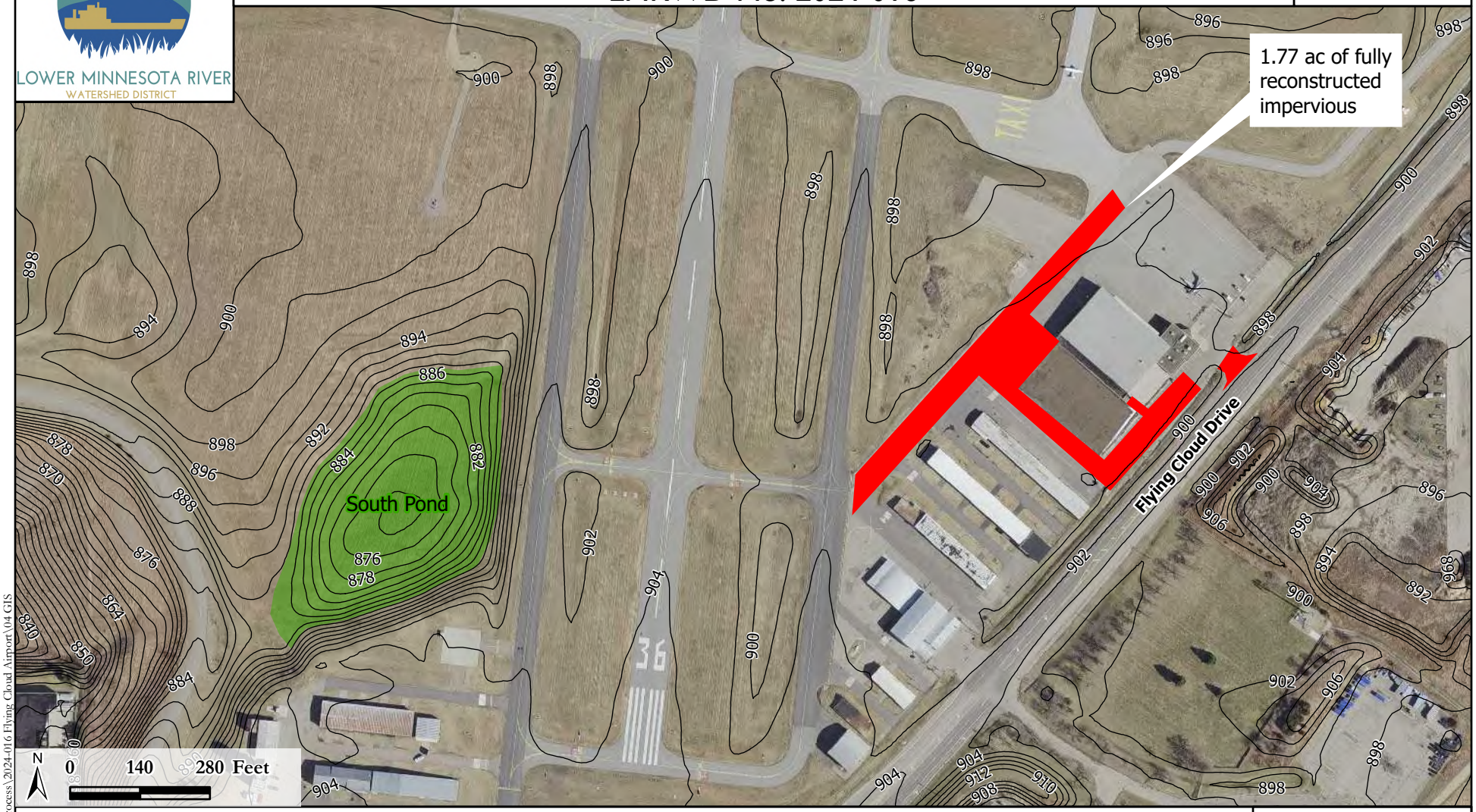

Legend

- Stormwater BMP
- New & Reconstructed Impervious

Location Map

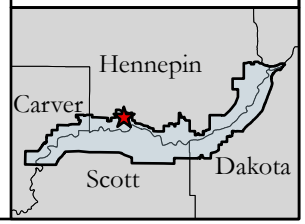

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Figure 3: Flying Cloud Airport Access Road
LMRWD No. 2024-016

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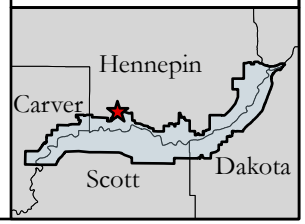
Legend

- Stormwater BMP
- New & Reconstructed Impervious

Location Map



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