Summer Tour with BWSR and Partners within the Vermillion River Watershed

August 23, 2023

Itinerary

Time	Location & Activity
6:00 – 7:30 AM	Breakfast for guests of GrandStay Hotel & Conference 7083 153rd Street West, Apple Valley, Minnesota 55124
7:30 AM	Check-in at the registration table in the LaGrand Conference Center at the GrandStay Hotel
7:45 AM	Welcome & Introductions: - Commissioner Mike Slavik, Vermillion River Watershed Joint Powers Board, Dakota County - Jayne Hager Dee, Dakota County Soil and Water Conservation District supervisor and BWSR Board Member - Mark Zabel BWSR Board Member
8:10 AM	Load bus from hotel and depart to East Lake Habitat Restoration Project.

Time	Tour Location & Activity	Bus 1 Host: Anne Sawyer, BWSR	Bus 2 Host: Steve Christopher, BWSR
8:40 AM	**East Lake Habitat Restoration Project** (0.4 mile south of 160th St. W. and Eagleview Drive)	- Ann Messerschmidt, City of Lakeville - Travis Thiel, Vermillion River Watershed Joint Powers Organization (VRWJPO)	
9:32 AM	**Erickson Park Stormwater Improvement Project** (0.1 miles south of 140th St. W. and 142nd Path W., then 0.1 miles east of 142nd Path W. and 142nd St. W.)	- Samantha Berger, City of Apple Valley - Travis Thiel, VRWJPO	
10:27 AM	**King Park Stormwater Reuse System** (Approx. 0.9 miles southwest of Dodd Blvd and Highview Ave)	- Mac Cafferty, City of Lakeville - Mark Kruse, City of Lakeville - Travis Thiel, VRWJPO	
11:09 AM	**Rambling River Park Stream Restoration** (Approx. 0.1 mile south of Dakota County Hwy 50 and Denmark Ave)	- Kellee Omlid, City of Farmington - TJ Debates, MNDNR - Mark Nemeth, MNDNR - Travis Thiel, VRWJPO	
12:07 – 1:07 PM	**Lunch at Glenhaven** (1595 220th Street East, Farmington, MN 55024)		
1:14 PM	**Groundwater Protection – Chuck Louis Farm** (Approx. 1.1 miles east of Blaine Ave. and 210th St. E)	- Chuck Louis, Landowner - Matthew Belanger, Dakota County Environmental Resources Department - Larry Gunderson, Minnesota Department of Ag. - Ashley Gallagher, Dakota County SWCD	

2:11 PM	**Travel** - **Braun Wetland Bank Easement** (Approx. 1.9 mile south of Blaine Ave. and State Hwy 50	Curt Coudron, Dakota County SWCD	Brian Watson, Dakota County SWCD
2:40 PM	**Prairie Strips and Climate Resiliency – Kimber Contours** (Approx. 2.5 miles west of Blaine Ave. and 270th St. W.)	- Kurt Kimber, Carol Lowry, and Christine Kimber, landowners - Matthew Schaar, Natural Resources Conservation Service - John Stelzner, Dakota County SWCD	
3:40 PM	**South Branch Nitrate Treatment Wetland** (Approx. 0.5 miles north of 240th St. W. and Denmark Ave	- Travis Thiel, VRWJPO	
4:47 PM	**Return to GrandStay Hotel**		

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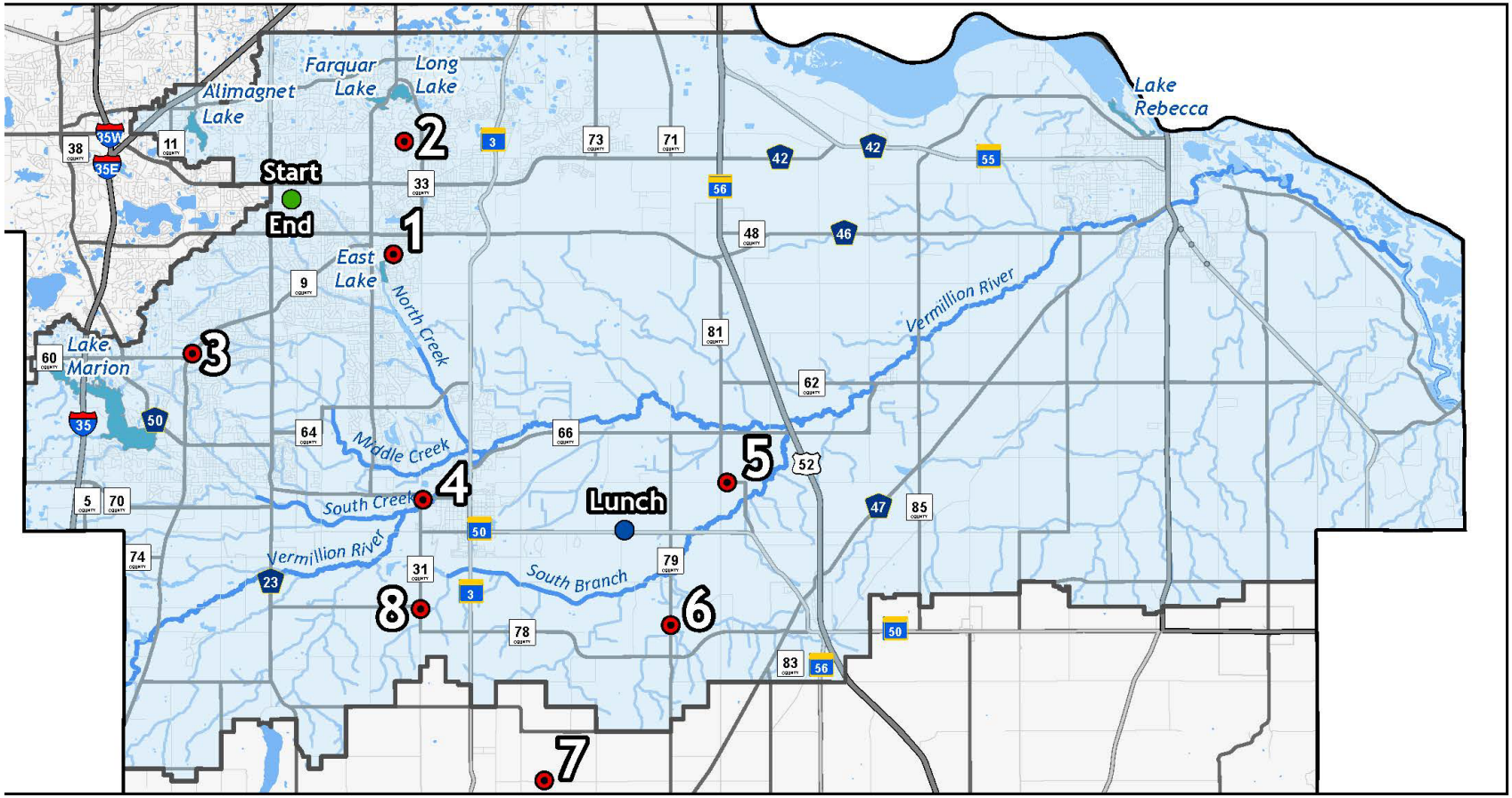

Tour Stops

Tour Start/End - GrandStay Hotel Apple Valley

Stop 1 East Lake Habitat Restoration Project
Stop 2 Erickson Stormwater Improvement Project
Stop 3 King Park Stormwater Reuse System
Stop 4 Rambling River Park Stream Restoration
Stop 5 Groundwater Protection - Chuck Louis Farm
Stop 6 Braun Wetland Bank Easement
Stop 7 Prairie Strips & Climate Resiliency: Kimber Contours
Stop 8 South Branch Nitrate Treatment Wetland

Lunch at Glenhaven Events

Site summaries

Stop 1: East Lake Habitat Improvements

Lakeville (off bus)

Overview

East Lake has historically exhibited degraded water quality, leading to the lake's designation as impaired due to excess nutrients. In addition, the woodlands adjoining East Lake host a prolific invasive species population within the woodland understory. In 2021, the City of Lakeville completed a habitat assessment that identified the need to continue restoration efforts within and surrounding the lake, and were subsequently awarded a Conservation Partners Legacy (CPL) grant to restore 1,600 feet of shoreline and enhance 18 acres of the native oak savannah. As less than 1% of Minnesota's native oak savanna remains, the project provides unique critical habitat by preserving a disappearing ecosystem.

East Lake Community Park is a trailhead for the North Creek Regional Greenway, which connects recreators to destinations including Lebanon Hills Regional Park and the Minnesota Zoo. A component of Dakota County's Greenway initiative is to provide hubs of critical habitat within the county and to connect them via corridors of trails and protected areas. As part of the Greenway hub, East Lake habitat improvements enhance the public's recreational experience by providing an opportunity to experience a diverse group of ecosystems including woodland, lake, and stream habitats.

Funding

Total project costs: $102,000
Funding sources: City of Lakeville, VRWJPO, DNR CPL Grant

Partners

- City of Lakeville
- VRWJPO
- Minnesota DNR

Woodland area near East Lake targeted for invasive species removal.

East Lake shoreline.

Stop 2: Erickson Park Stormwater Improvements

Apple Valley (off bus)

Overview

Erickson Park provides open space and flood retention for the surrounding residential areas in Apple Valley. When the stormwater pond and piping were installed in the area 45 years ago, the focus was on holding water after heavy rains, not on addressing water quality. As a result, the runoff from most storms passed through the pond with very little pollutant removal. Stormwater flows through Erickson Park and ultimately reaches Farquar Lake, which is impaired for nutrients (phosphorus).

In 2021, the City of Apple Valley and VRWJPO, with support from a Clean Water Fund grant from the Minnesota Board of Water and Soil Resources (BWSR), retrofitted the pond to provide additional water quality treatment and infiltration. The Erickson Park stormwater improvements will provide better management and treatment of low flows, reduce phosphorus delivery to Farquar Lake, and provide better access for maintenance and sediment removal in the long-term. Phosphorus reduction at Farquar Lake resulting from the project is estimated at seven pounds per year. Partners avoided construction in the existing pollinator garden in the northern portion of Erickson Park, allowing two environmentally sustainable projects to work alongside each other and educate community members.

Funding

Total project costs: $377,992
Funding sources: City of Apple Valley, VRWJPO, BWSR Clean Water Fund grant

Partners

- City of Apple Valley
- VRWJPO
- BWSR

The new sand filter and retrofitted stormwater pond at Erickson Park.

Stop 3: King Park Stormwater Pond Reuse System

Lakeville (off bus)

Overview

Stormwater runoff, often viewed as a negative consequence of development and a source of pollution, can instead be a reusable asset. Additionally, many people expect green lawns on public park lands such as King Park, a baseball field complex in the City of Lakeville.

Previously, a stormwater pond at the north end of the park overflowed and drained into Middle Creek during large storms. In 2011, the first pump system was installed to irrigate two baseball fields and draw down the pond level. This was Phase 1 of a three-phase irrigation system installation plan. When Dakota County reconstructed a portion of Dodd Boulevard in 2016, a large pond was built at the south end of the park to capture stormwater runoff from the road. The large pond made it possible to install a new, larger pump station that would service the entire complex, which the City of Lakeville implemented for Phase 2. Two additional baseball fields were irrigated within this phase. In 2019, the city implemented Phase 3 of the irrigation installation, in which the last four baseball fields and some common areas in the park were irrigated. Phase 3 cost approximately $190,000 and was the final phase of the project. From 2019 to early 2023, the city spent approximately $60,000 to combine the three phases in a more cohesive manner. The original pump station now serves as a transfer pump from the northern pond to the southern pond. All irrigation for the site is drawn from the southern pond. These improvements have enhanced the efficiency and operation of the irrigation system.

Middle Creek is an impaired tributary to the Vermillion River. Its water quality problems can be improved by reducing the amount of excess stormwater runoff. Using stormwater rather than groundwater from the municipal water supply to irrigate conserves Lakeville's drinking water and demonstrates smart water use, while preventing excess stormwater from reaching Middle Creek.

The reuse system has reduced groundwater use by several million gallons per year, though it's varied during wet and dry years. Other benefits include reductions in total suspended solids pollution, total phosphorus, E. coli bacteria, and excess stormwater discharged to Middle Creek. Cost-share funding from the VRWJPO and a Clean Water Fund Grant from BWSR enabled the city to install the phase 2 pump and irrigation system.

Funding

Total project costs:

- 2011 (Phase 1): $61,125
- 2016 (Phase 2): $157,280
- 2019 (Phase 3): $190,000
- Final Combining: $60,000
- Total: 468,405

Funding sources: VRWJPO, City of Lakeville, Dakota County, BWSR Clean Water Fund

Partners

- City of Lakeville
- VRWJPO
- BWSR
- Dakota County

A pump and stormwater pond at King Park.

Stop 4: Rambling River Park Vermillion River Trout Stream Restoration

Farmington (off bus)

Overview

Rambling River Park in the City of Farmington is a popular recreation destination featuring picnic areas, hiking/biking trails, and a trophy trout stream with a self-sustaining brown trout population. The segment of the Vermillion River that runs through Rambling River Park has been impaired for turbidity, insufficient dissolved oxygen, and aquatic life. These problems arose from insufficient in-stream habitat, streambank erosion and excess sediment from upstream sources, inadequate connection to the flood plain, and lack of native riparian vegetation.

This project was completed in 2017 and included:

- Constructing bioengineering practices on the banks and channel of the Vermillion River, including cedar tree revetments, rootwad installations, and encapsulation soil lifts with integrated woody material (see photo)
- Excavating excess floodplain soils to better connect the Vermillion River to its floodplain
- Controlling site access to sensitive areas with the intent of minimizing wetland impacts
- Excavation that minimizes damage to existing site conditions
- Landscaping practices including native plant seeding, erosion control blanket, mulch installation, and other various site landscaping
- Reconstructing the existing bituminous trail in the project work area and extension of a spur trail to provide fishing access

Project benefits include improved habitat quality, quantity, and diversity; a narrower channel that can make sediment movement easier; cooler temperatures; improved dissolved oxygen concentrations; and easier fishing conditions.

Funding

Total project costs: $237,442.83
Funding sources: Minnesota DNR CPL grant, VRWJPO, Southern Dakota County Sportsman's Club

Partners

- City of Farmington
- Southern Dakota Sportsmen's Club
- Dakota County SWCD
- VRWJPO
- Minnesota DNR

The bank of the Vermillion River in Rambling River Park, showing the cedar tree revetments and rocks.

Stop 5: Groundwater Protection – Chuck Louis Farm

Vermillion Township (off bus)

Overview

Most drinking water in Dakota County comes from groundwater, but many of the soils types found in the region are vulnerable to groundwater contamination. The Agricultural Chemical Reduction Effort (ACRE) is an outcome of the 2020-2030 Dakota County Groundwater Plan, which identified farm chemicals – nitrate, crop herbicides, and chloride – as risks to drinking water in rural parts of Dakota County. Through ACRE and the Minnesota Department of Agriculture's Nitrate Fertilizer Management Plan (NFMP), the local agricultural community is involved in problem solving to address concerns about unsafe levels of nitrate in groundwater. Both ACRE and the NFMP will use voluntary actions to reduce chemicals in groundwater.

Dakota County is the second largest irrigated county in the state of Minnesota with an estimated 60,000 acres of irrigated land on 200,000 acres of farmland. New technology and online tools can reduce the demand on groundwater and manage water in the root zone, helping reduce nutrient loss.

Funding

This stop does not showcase one specific project. Multiple federal, state, and local funding sources are used to address both the protection of groundwater quality and groundwater supply.

Partners

- Dakota County
- Dakota County SWCD
- VRWJPO
- USDA – Natural Resources Conservation Service (NRCS)
- Minnesota Department of Agriculture
- BWSR
- Minnesota Department of Health

Shallow monitoring well being drilled. A new water monitoring network provides improved water quality data.

Agricultural crop irrigation system

Stop 6: Braun Wetland Bank Easement

Castle Rock Township (on bus)

Overview

Wetland banks are created to offset wetland impacts that occur from development, road projects, or other land uses in another location. The Braun wetland bank easement includes 120 acres and was restored by severing over 17 miles of subsurface drain tile, removing a lift station that pumped groundwater to a tributary stream, plugging surface water ditches, and reseeding with native wetland species. The site had been used for sod or agricultural crops since the 1970s. The restored wetland will provide flood retention, carbon sequestration, nitrate reduction, and wildlife habitat benefits.

Both the Dakota County Board of Commissioners and the Vermillion River Watershed Joint Powers Board have adopted a policy that encourages the replacement of wetlands locally. BWSR has the responsibility of providing wetland mitigation for certain qualifying road repair and reconstruction projects conducted by local road authorities. The project will provide wetland credits to BWSR to assist with their statutory responsibilities and to Dakota County for mitigating capital improvement projects that are unable to avoid wetland impacts. The VRWJPO also partnered on this wetland bank to provide a local replacement option for private development ventures. This encourages wetland replacement in the same local watershed where wetlands are being lost. With the proceeds from selling wetland credits, the VRWJPO has created a revolving fund for establishing future wetland restoration projects.

Funding

Total project costs: $1,600,000 (estimate)
Funding sources: Dakota County, VRWJPO, BWSR

Partners

- Braun Family
- BWSR
- Dakota County
- VRWJPO
- Dakota County SWCD

Planted corn within easement (July 2020)

Restored wet meadow wetland (August 2022)

Stop 7: Prairie Strips and Climate Resiliency – Kimber Contours

Castle Rock Township (off bus)

Overview

Siblings Kurt Kimber, Chris Kimber, and Carol Lowry grow food for local consumption including Kernza, small grains, food-grade soybeans, and sweet corn. Their 240-acre family farm uses contour farming and native prairie strips to intercept, filter, and infiltrate surface water runoff, with the goal of reducing erosion, treating all the water runoff before it leaves the field, and providing pollinator habitat.

The Kimber's practices improve their operation's resilience against extreme climate events, reduced emissions, and help build soil organic matter which is important for carbon storage. In addition to their native prairie strips and Kernza crop, they have experimented with agroforestry by planting chestnut trees to aid in soil building and water retention. The Kimber's also plant cover crops and use reduced tillage to promote soil health and farm resiliency. The farm became certified in the Minnesota Agricultural Water Quality Certification Program in 2017. The Kimbers continue to network with area growers, processors, and researchers to expand our local food web and associated supply chain.

Funding

Total project costs: $14,747 (Native Prairie Strips)
Funding sources: Kimber Family, Dakota County, USDA – NRCS

Partners

- Kimber Family
- Dakota SWCD
- Dakota County
- USDA – NRCS
- Xerces Society
- Minnesota Department of Agriculture
- U of M – Forever Green
- Clean River Partners

Example of a native praire strip installed on the contour and located between cultvated fields

Overhead view of Kimber Family farm showing native prairie stips integrated with crops

Stop 8: South Branch Vermillion River Nitrate Treatment Constructed Wetland

Castle Rock Township (off bus)

Overview

Nitrate is generally associated with non-point source runoff and can cause health issues for humans and animals. The South Branch Vermillion River subwatershed has the highest nitrate load in the watershed. It contributes to contaminated groundwater (drinking water) in the eastern portion of the watershed due to the area geology that allows for river water to leak into the underlying drinking water aquifers.

Dakota County reconstructed County Road 78 in 2017, which allowed the VRWJPO to design and construct a nitrate treatment practice adjacent to the road and concurrent with the road project to save on construction costs. A constructed wetland was created and enhanced with woodchips. The woodchips provide an additional carbon source in the wetland soil. This allows nitrate-reducing bacteria to thrive within the wetland, leading to more nitrate reduction than a wetland alone. A pre-treatment pond settles the bulk of sediment prior to discharging into the wetland.

The South Branch Vermillion River has averaged 200,000 pounds of nitrate peryear as measured at the VRWJPO's subwatershed outlet monitoring station. The project is estimated to reduce total nitrate by 13,600 lbs. per year and total suspended solids by 7.6 tons per year. Additionally, the wetland improves habitat conditions in the South Branch tributary and Vermillion River mainstem, where sediment is often responsible for covering or filling critical wildlife refuge and spawning areas. This is important for the trophy brown trout population in the South Branch.

Funding

Total project costs: $220,113
Funding sources: VRWJPO, Dakota County, BWSR Clean Water Fund

Partners

- VRWJPO
- Dakota County
- BWSR

The nitrate treatment wetland off Dakota County Road 78.

Dinner "On Your Own" Options

Celts Craft House

American
Connected to GrandStay Hotel
7083 153rd Street West
Apple Valley, MN 55124
952-683-1533

The Tavern Grill

American
15435 Founders Lane
Apple Valley, MN 55124
952-683-1222

Pizzeria Social

American, Pizza
14889 Florence Trail
Apple Valley, MN 55124
952-236-8115

El Azteca

Mexican
6670 150th Street West
Apple Valley, MN 55124
952-432-3727

Texas Roadhouse

Steakhouse, American
5545 157th Street West
Apple Valley, MN 55124
952-395-3660

Ineffable Brewing Co.

American
1905 County Road 42 West, Ste 100
Burnsville, MN 55306
952-500-9348

Crooked Pint Ale House

American
15668 Pilot Knob Road
Apple Valley, MN 55124
952-891-3883

Osaka Seafood Steakhouse

Japanese, Seafood
7537 148th Street West, Suite A
Apple Valley, MN 55124
952-432-6155

Wild Bill's Sports Saloon

American
15020 Glazier Ave
Apple Valley, MN 55124
952-432-2455

Farmer and the Fishmonger

American
14883 Florence Trail
Apple Valley, MN 55124
952-431-1497