

# Interstate Valley Creek

## Erosion Control & Volume Reduction Study

### LMRWMO Board Meeting

4-12-23

**Joe Barten, CPSWQ**

Senior Resource Conservationist, Dakota County SWCD

Administrator via Dakota County SWCD, Lower Mississippi River WMO



# Interstate Valley Creek

## Erosion Control & Volume Reduction Study

### LMRWMO Board Meeting

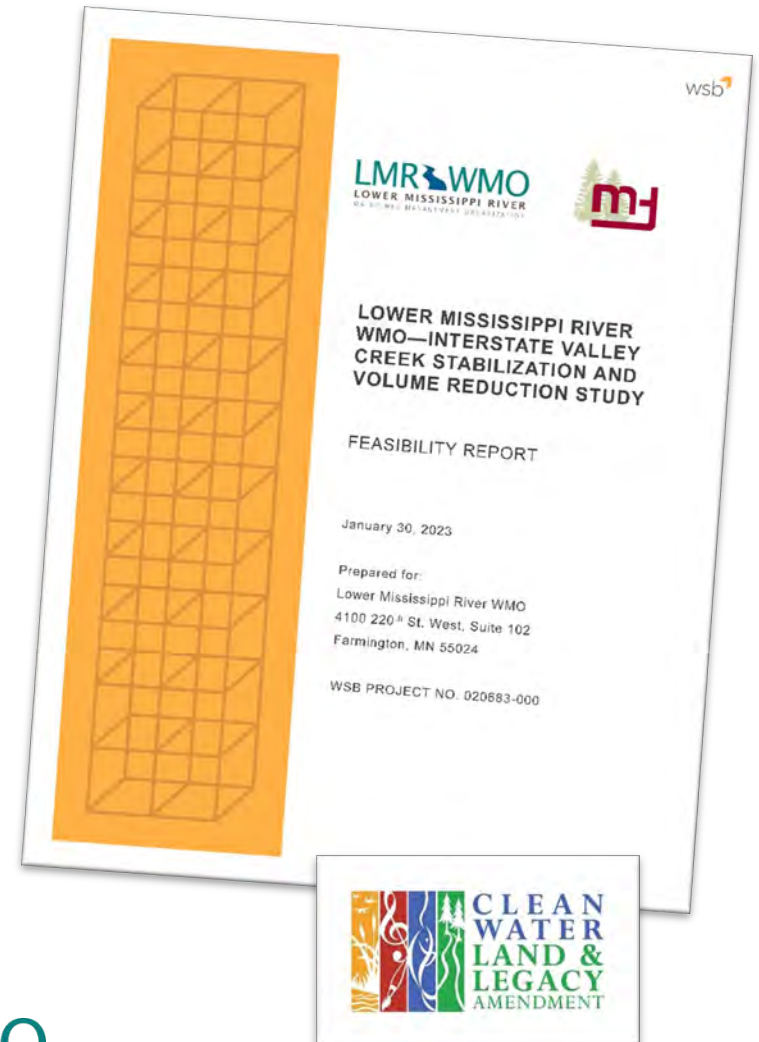
4-12-23

- Interstate Valley Creek Study
- Study Outcomes
- Next Steps

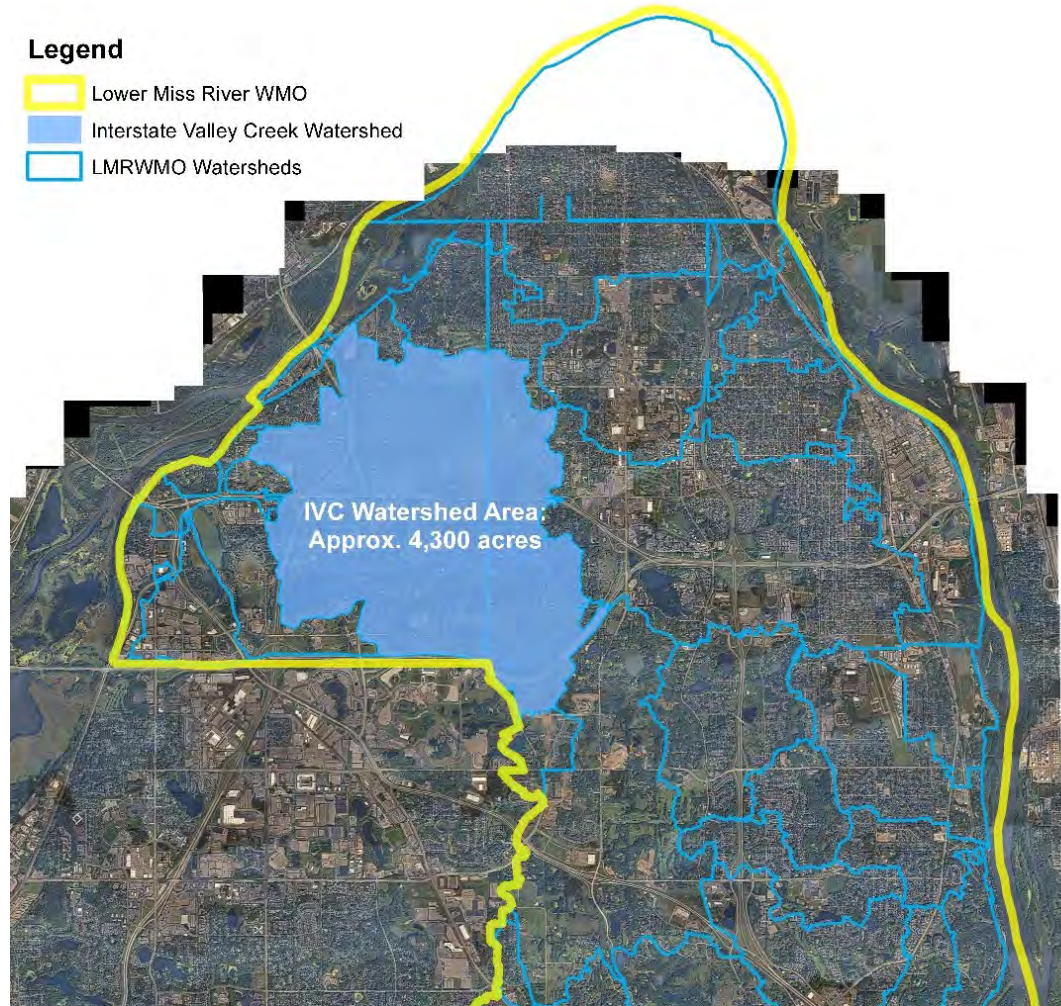


# Interstate Valley Creek – Erosion Control & Volume Reduction Study - WSB

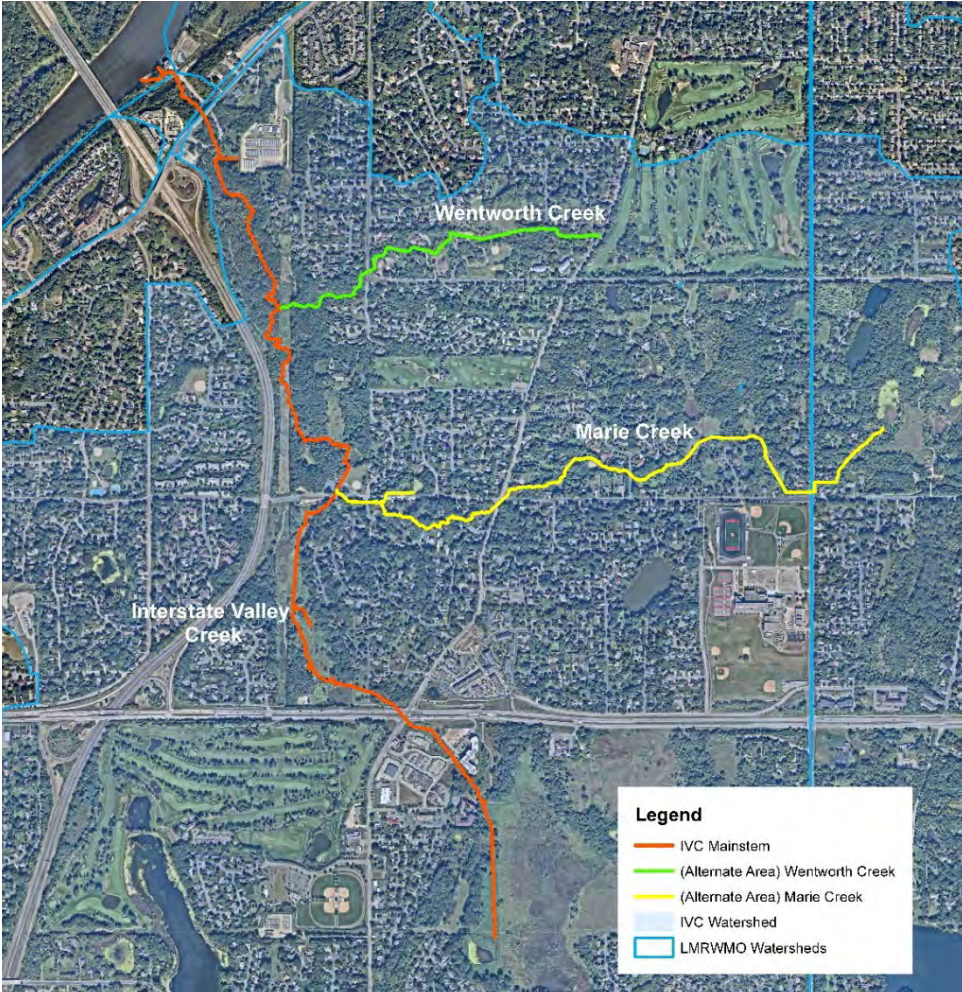
- Identify project opportunities
  - Streambank Stabilization
  - Volume Reduction
- Concurrent trail project
  - Dakota County and City of MH
- Allowable flow calculations
- Grant positioning



# Interstate Valley Creek - Watershed



# Interstate Valley Creek – Stream Reaches



# Interstate Valley Creek



# Interstate Valley Creek



# Interstate Valley Creek



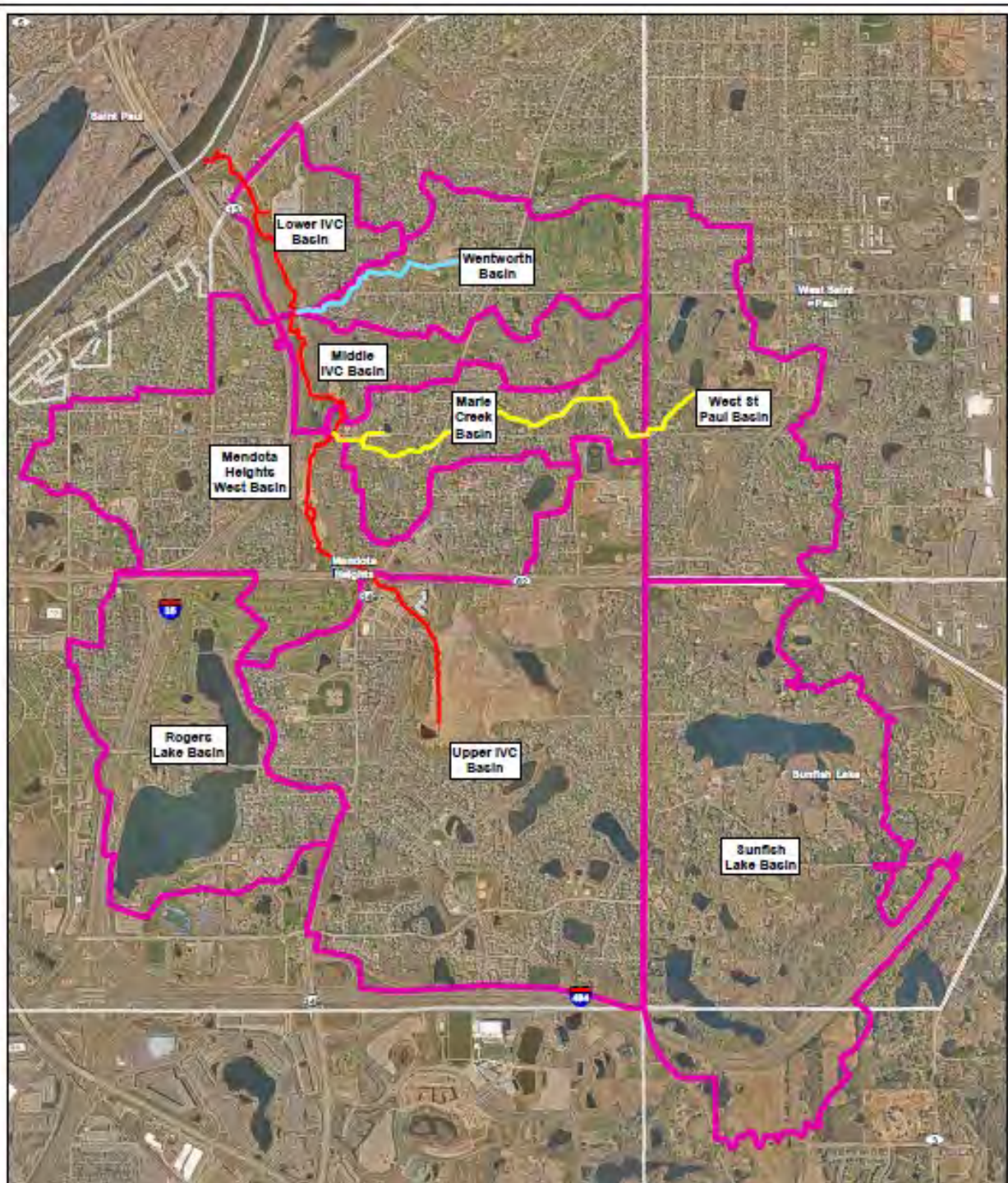


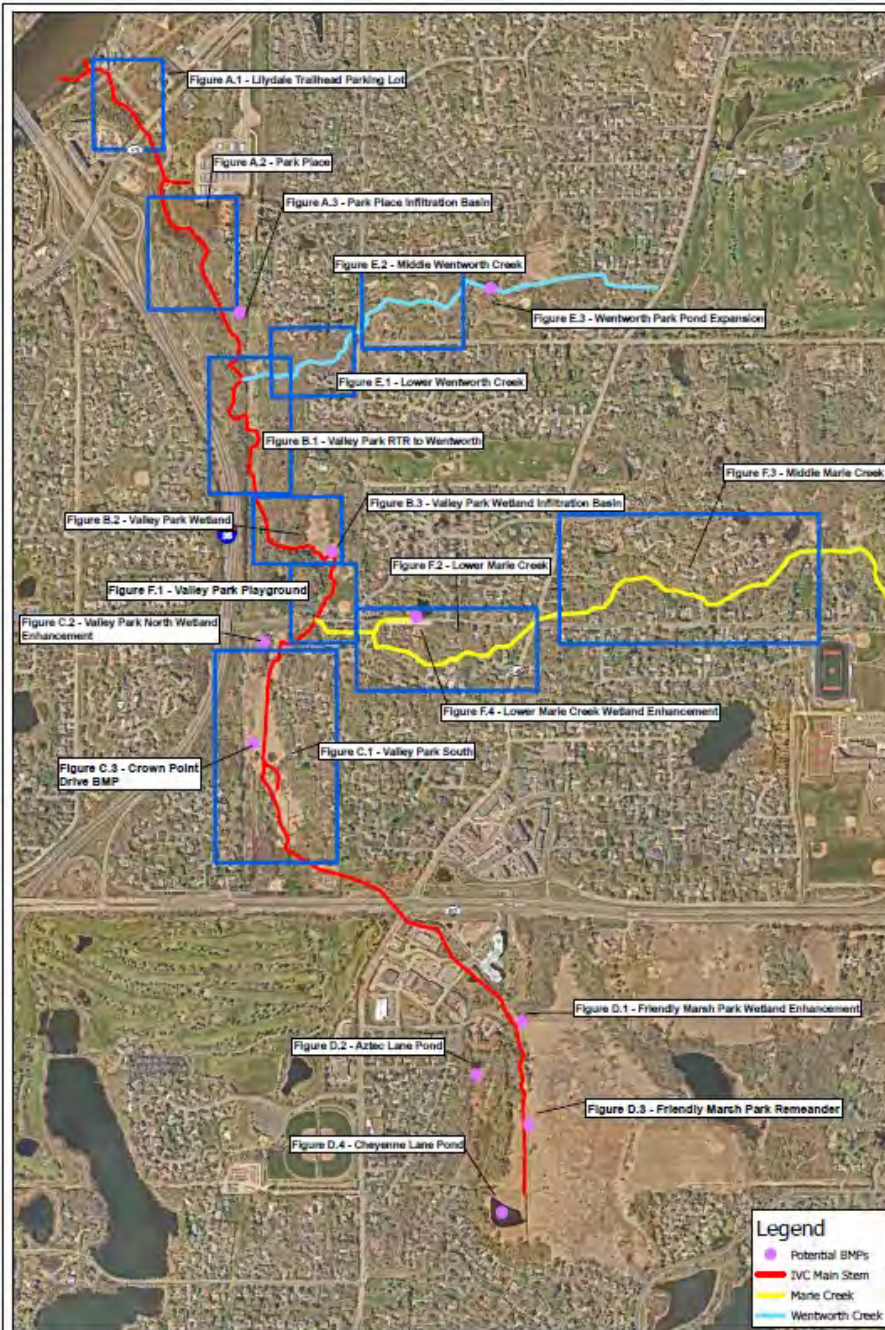
# Interstate Valley Creek



# Interstate Valley Creek







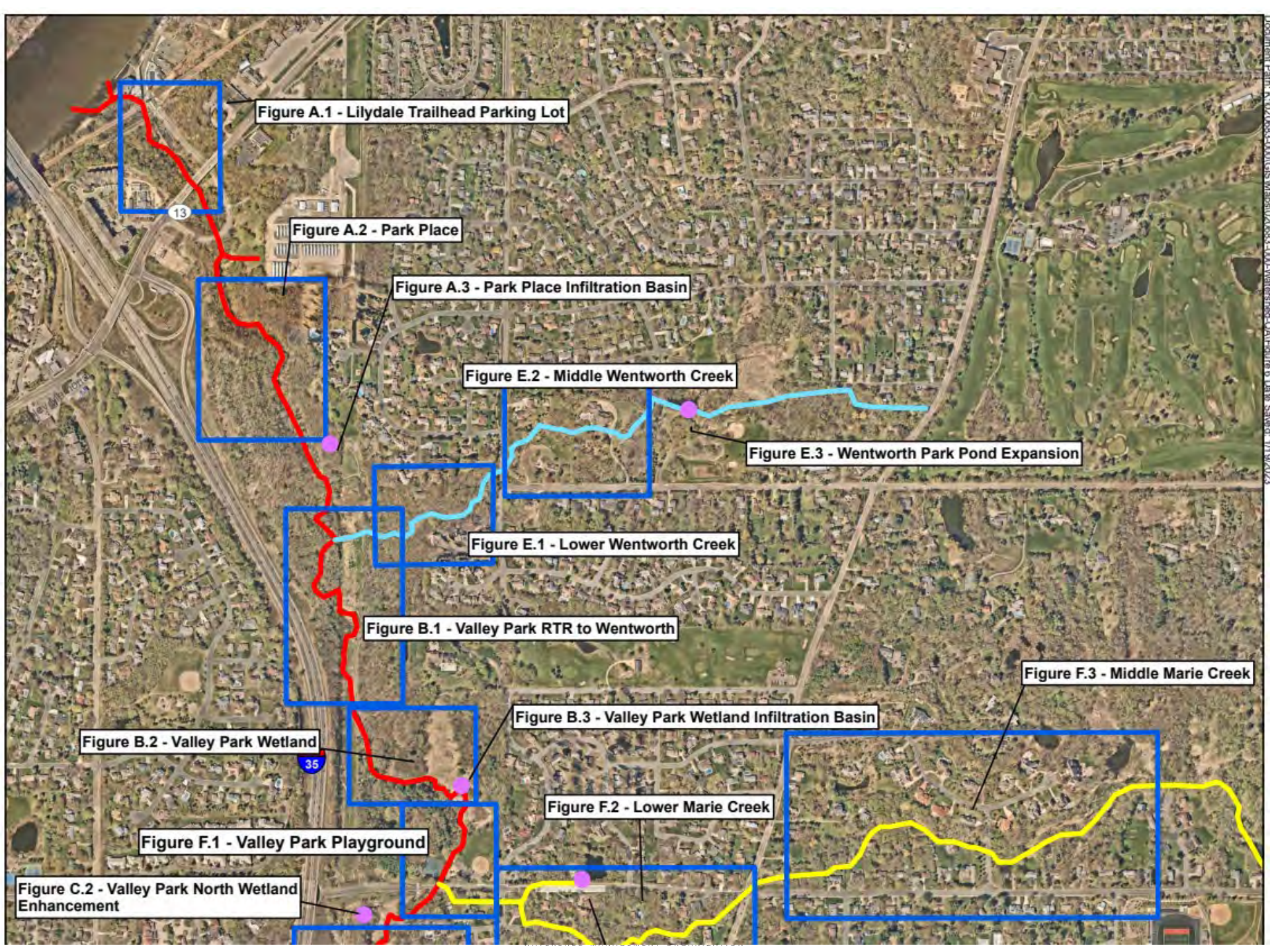


Figure A.1 - Lilydale Trailhead Parking Lot

Figure A.2 - Park Place

Figure A.3 - Park Place Infiltration Basin

Figure E.2 - Middle Wentworth Creek

Figure E.3 - Wentworth Park Pond Expansion

Figure E.1 - Lower Wentworth Creek

Figure B.1 - Valley Park RTR to Wentworth

Figure B.2 - Valley Park Wetland

Figure B.3 - Valley Park Wetland Infiltration Basin

Figure F.3 - Middle Marie Creek

Figure F.2 - Lower Marie Creek

Figure F.1 - Valley Park Playground

Figure C.2 - Valley Park North Wetland Enhancement

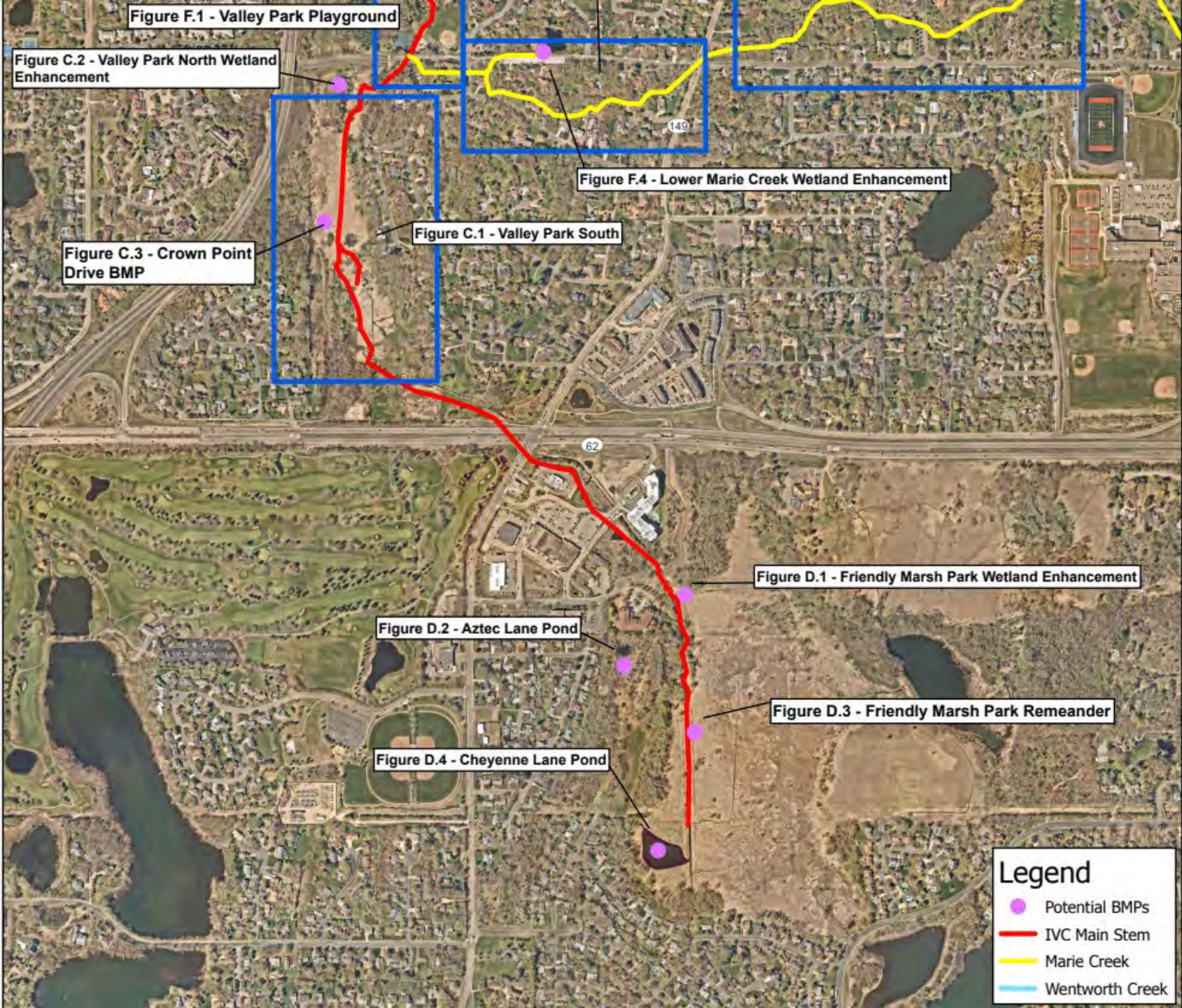


Figure F.1 - Valley Park Playground

Figure C.2 - Valley Park North Wetland Enhancement

Figure F.4 - Lower Marie Creek Wetland Enhancement

Figure C.1 - Valley Park South

Figure C.3 - Crown Point Drive BMP

Figure D.1 - Friendly Marsh Park Wetland Enhancement

Figure D.2 - Aztec Lane Pond

Figure D.3 - Friendly Marsh Park Remeander

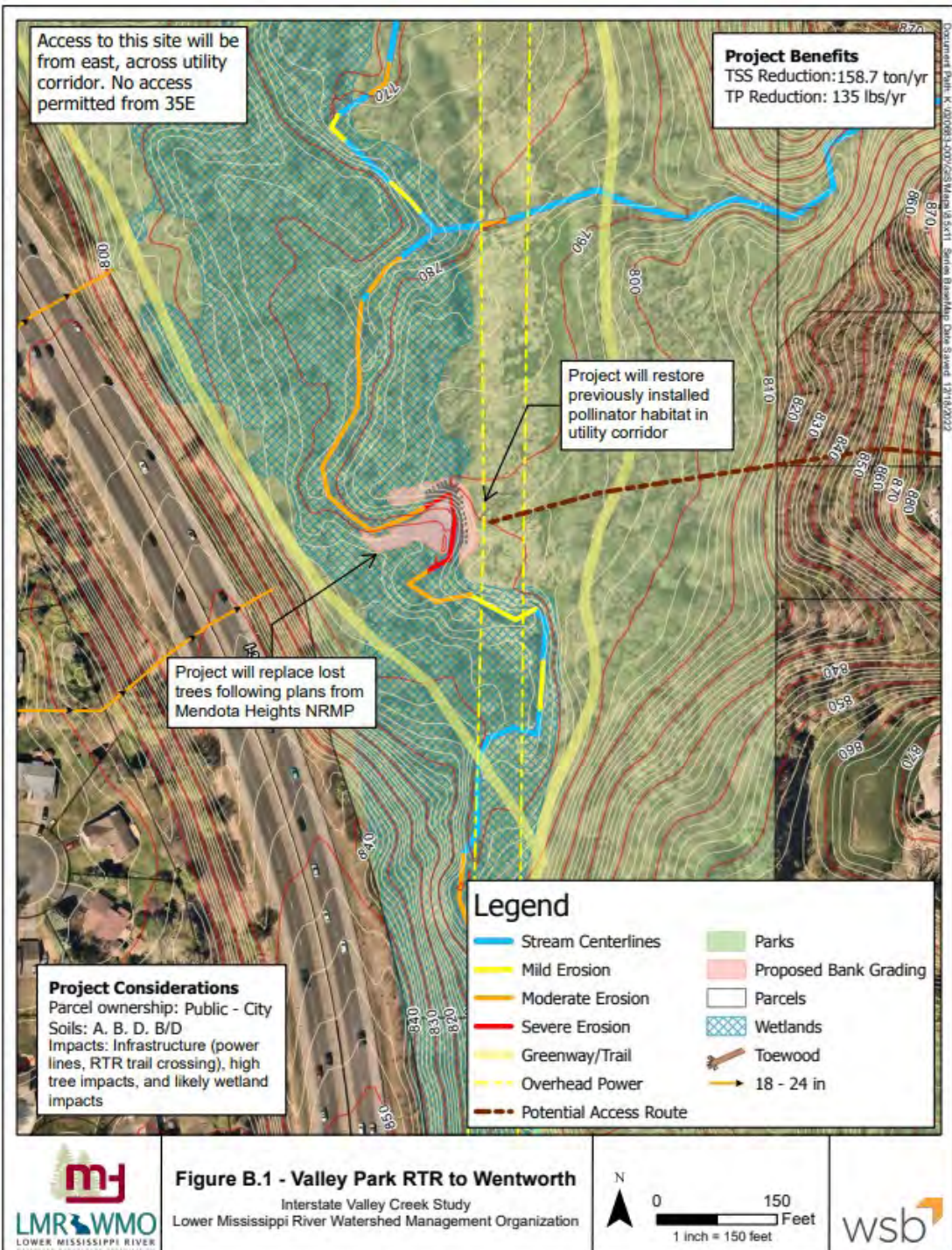
Figure D.4 - Cheyenne Lane Pond

**Legend**

- Potential BMPs
- IVC Main Stem
- Marie Creek
- Wentworth Creek

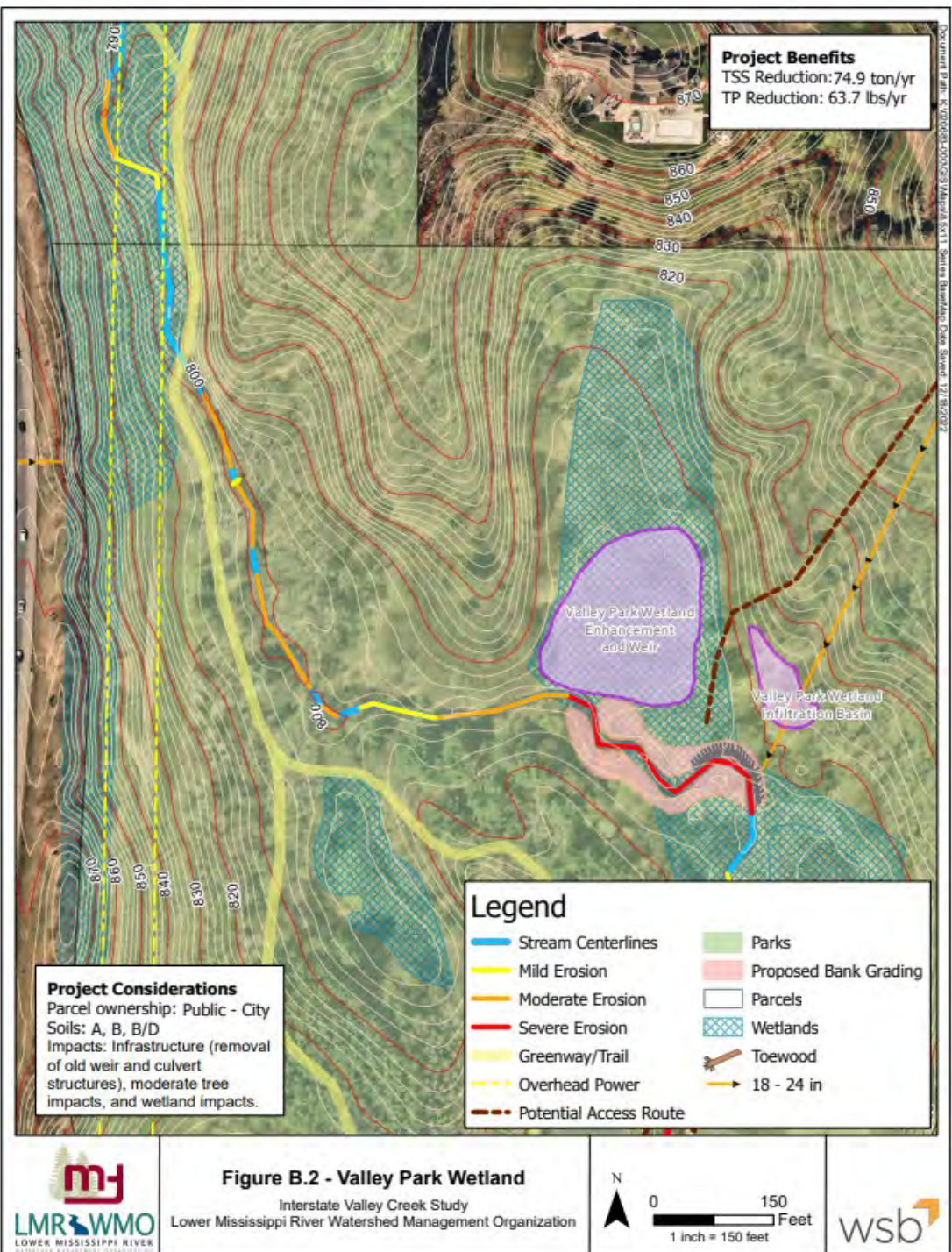
## Valley Park R2R to Wentworth

- Highest Ranked Stabilization Project
- Cost~ \$85,000
- Sediment: 158 tons/yr
- Phosphorus: 135 lbs/yr
- Cost/Benefit: \$46/lb of Phosphorus



# Valley Park Wetland

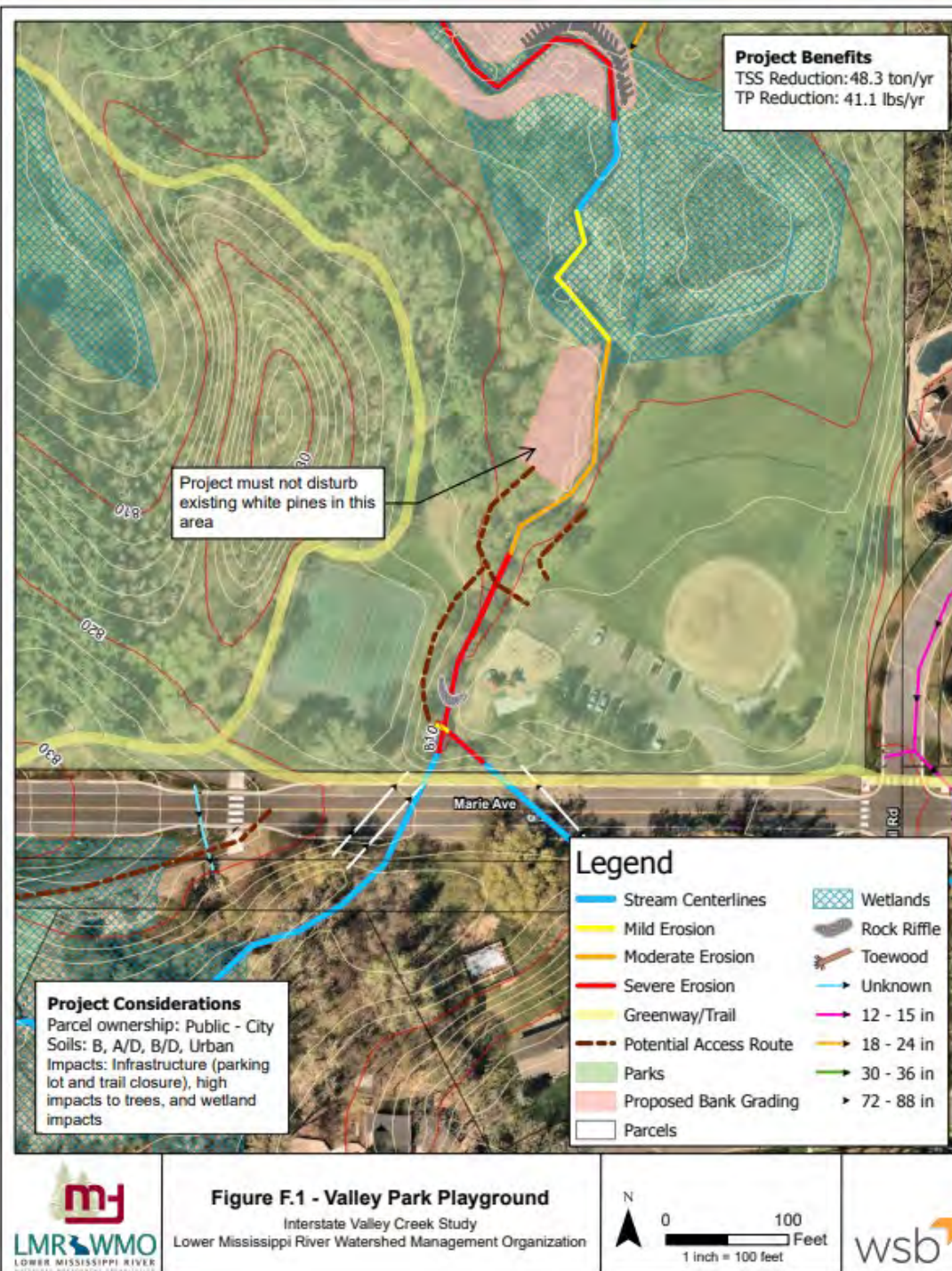
- 2<sup>nd</sup> Highest Ranked Stabilization Project
- Cost~ \$100,000
- Sediment: 74 tons/yr
- Phosphorus: 85 lbs/yr
- Cost/Benefit: \$46/lb of Phosphorus

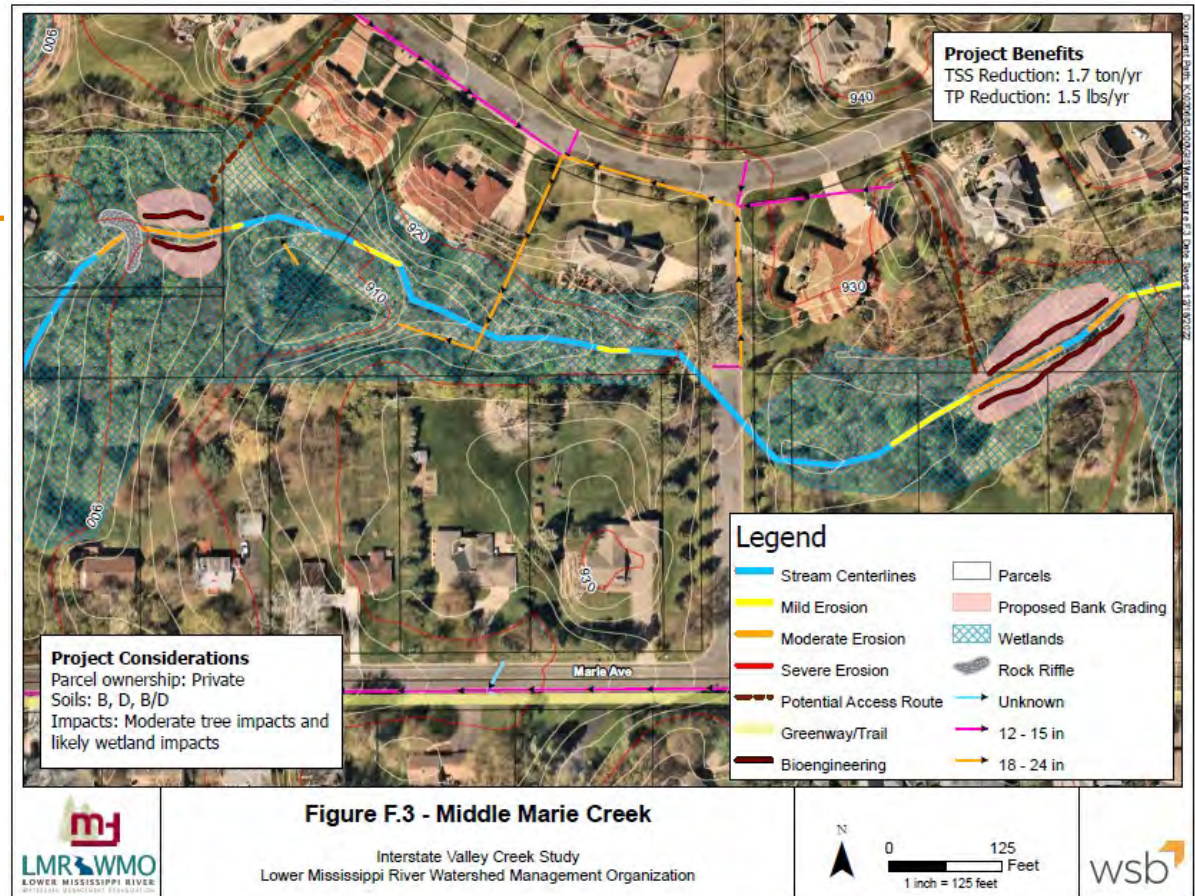




## Valley Park Playground

- 3<sup>rd</sup> Highest Ranked Stabilization Project
- Cost~ \$50,000
- Sediment: 48 tons/yr
- Phosphorus: 41 lbs/yr
- Cost/Benefit: \$46/lb of Phosphorus





## Middle Marie Creek and Others.....

- Lower Ranking and outside trail project area
- Consider for future implementation

# Stabilization Outcomes

## Prioritization Table – Cost Benefit/Location

Table J.1: Stabilization Project Decision Matrix and Prioritization

Concept Design (Section No./ Figure No.)	TSS Reduction (ton/yr)	TP Reduction (lbs/yr)	Total Project Cost <sup>1</sup>	TP Pollutant Cost Benefit (\$/lb) <sup>2</sup>	TSS / TP Reduction Score	TP Cost Benefit Score	Constructability Score	Total Score
Valley Park RTR to Wentworth (B.4.1/B.1)	158.7	135.0	\$83,250	\$25	3	5	1	9
Valley Park Wetland (B.4.2/B.2)	74.9	85.2	\$98,650	\$46	3	5	1	9
Valley Park Playground (F.4.1/F.1)	48.3	41.1	\$47,100	\$46	2	5	2	9
Lower Wentworth Creek (E.4.1/E.1)	1.3	1.1	\$15,175	\$552	1	3	3	7
Middle Wentworth Creek (E.4.2/E.2)	4.9	4.1	\$57,850	\$564	1	3	3	7
Park Place (A.4.2/A.2)	3.8	3.3	\$37,500	\$455	1	3	2	6
Lower Marie Creek (F.4.2/F.2)	2.6	2.2	\$38,400	\$698	1	2	3	6
Lilydale Trailhead Parking Lot (A.4.1/A.1)	0.7	0.6	\$30,900	\$2,060	1	1	3	5
Middle Marie Creek (F.4.3/F.3)	1.7	1.5	\$51,600	\$1,376	1	1	3	5
Valley Park South (C.4.1/C.1)	2.5	2.2	\$140,000	\$2,545	1	1	2	4

<sup>1</sup>The project costs listed do not include potential land or easement acquisition costs.

<sup>2</sup>The cost benefit assumes a 25-year stabilization benefit lifecycle.

# Stabilization Next Steps – Potential Grants

Table J.1: Stabilization Project Decision Matrix and Prioritization

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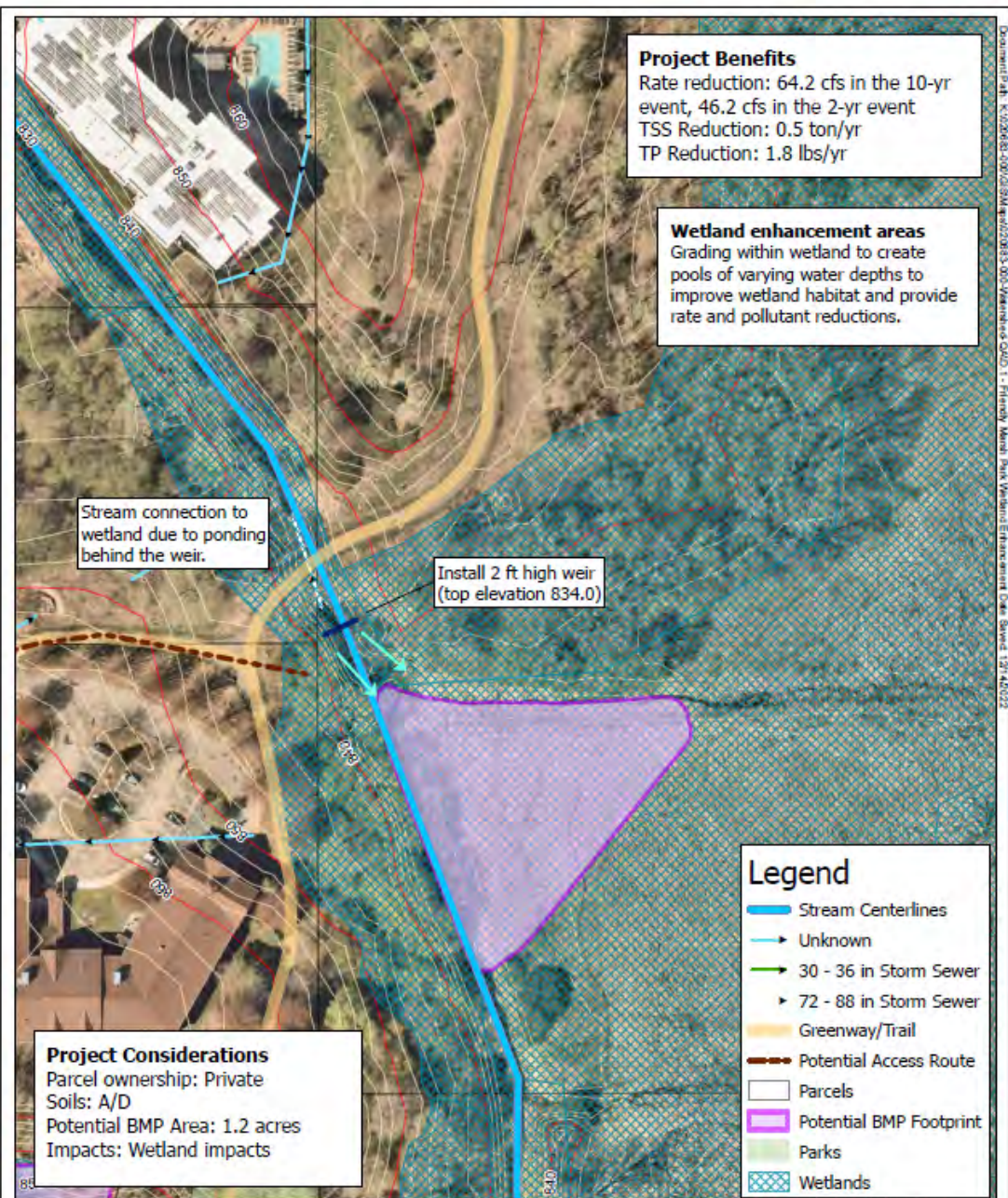
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<sup>2</sup>The cost benefit assumes a 25-year stabilization benefit lifecycle.

## Potential Grant Application Scenario

- BWSR Projects & Practices (~9M) - August 2023 next round
- Top 3 Projects
  - Construction ~\$235k
  - Admin/Engineering ~\$100-125k
  - Grant request ~\$335-360k
  - Local Match ~\$84-90k in local Match (County, WMO, City?)

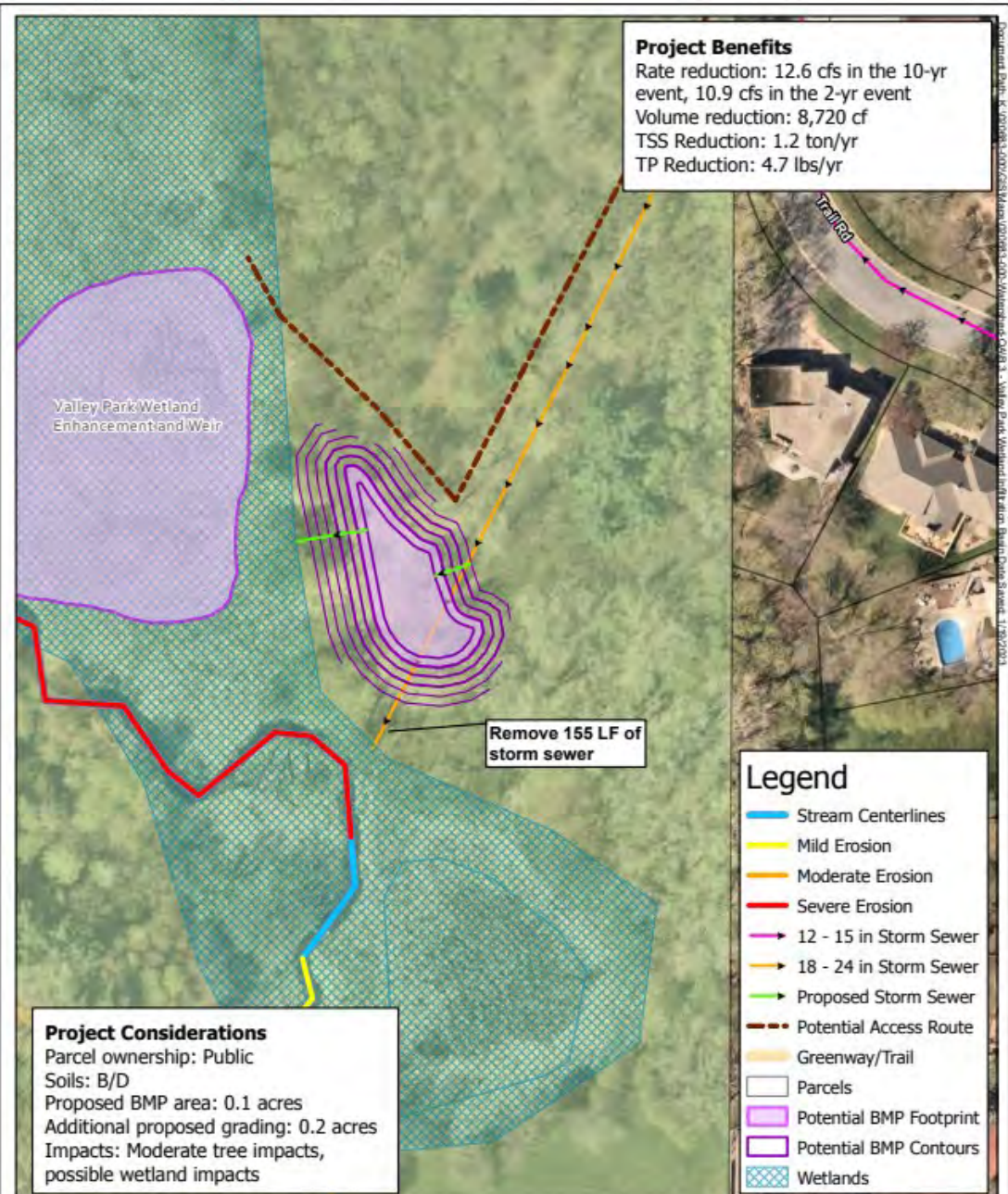
# Friendly Marsh Park Wetland Enhancement

- Future Implementation (Away from Trail Project)
- Highest Ranked Volume Control Project
- Cost~ \$180,000

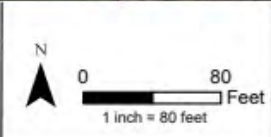


# Valley Park Wetland Infiltration Basin

- Project of Opportunity with Trail/Stabilization Proximity
- 2<sup>nd</sup> Highest Ranked Volume Control Project
- Cost~ \$185,000

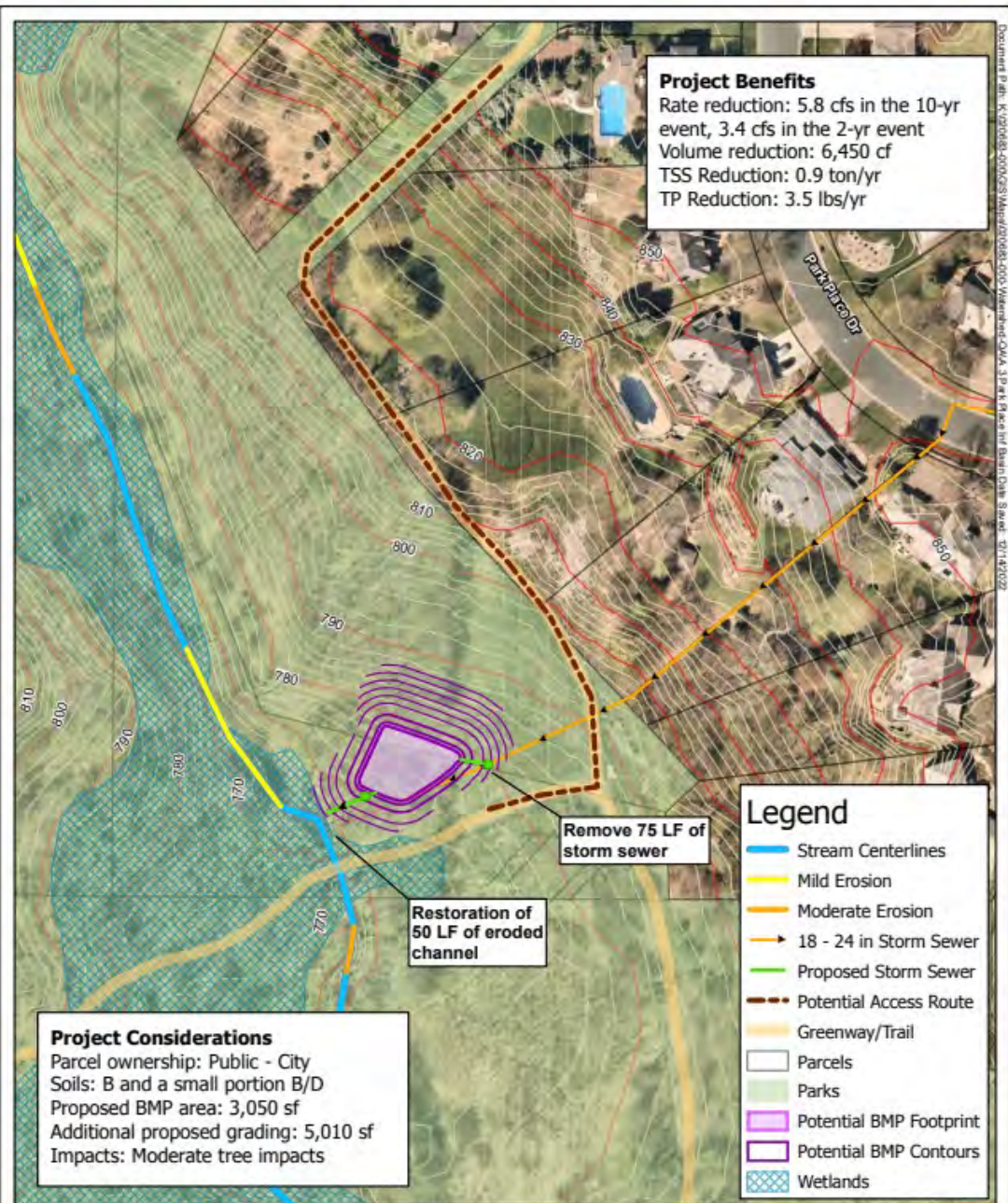


**Figure B.3 - Valley Park Wetland Infiltration Basin**  
 Interstate Valley Creek Study  
 Lower Mississippi River Watershed Management Organization



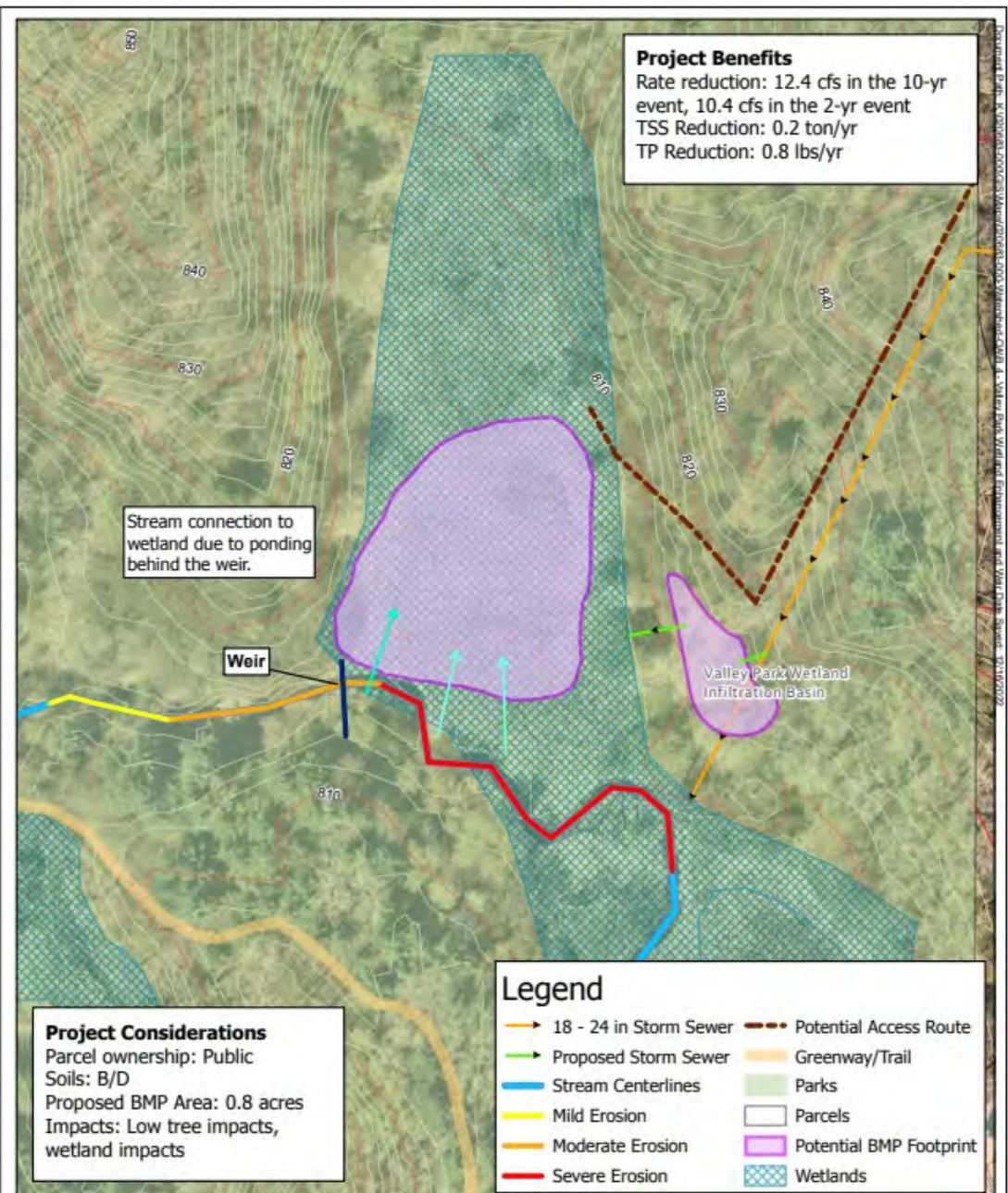
## Park Place Filtration Basin

- Project of Opportunity with Trail project
- 4<sup>th</sup> Highest Ranked Volume Control Project
- Cost~ \$185,000

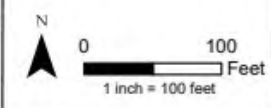


# Valley Park Wetland Enhancement & Weir

- Project of Opportunity with Trail & stabilization projects
- Could be done separately from North
- Lower Cost/Benefit
- 5<sup>th</sup> Highest Ranked Volume Control Project
- Cost~ \$231,000



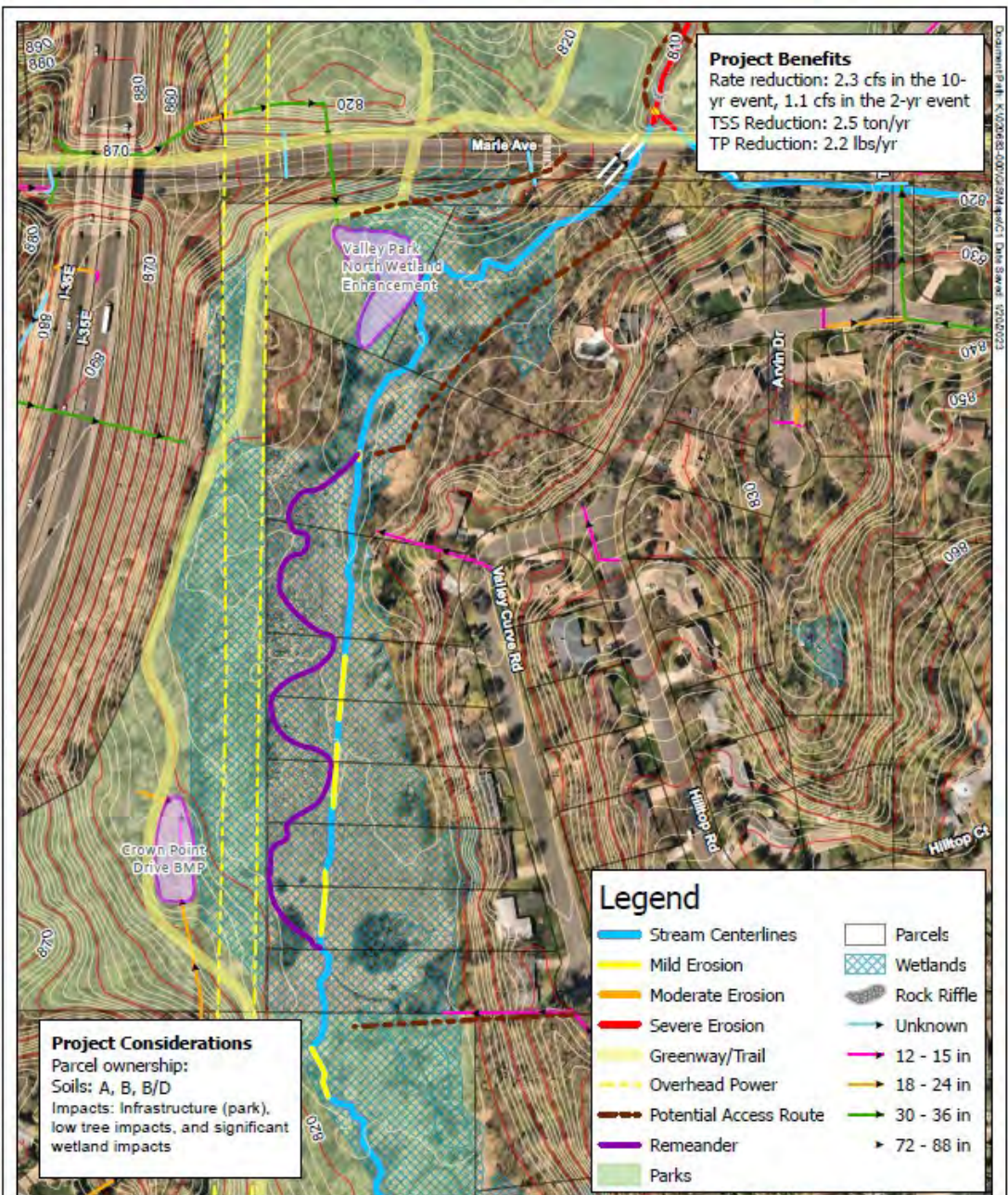
**Figure B.4 - Valley Park Wetland Enhancement and Weir**  
 Interstate Valley Creek Study  
 Lower Mississippi River Watershed Management Organization





# Valley Park South

- Lower Ranked
- Stormwater Projects of opportunity with Trail Reconstruction
- Potential Future Implementation of Stream Restoration



**Figure C.1 - Valley Park South**  
 Interstate Valley Creek Study  
 Lower Mississippi River Watershed Management Organization

LMR WMO  
 LOWER MISSISSIPPI RIVER  
 WATERSHED MANAGEMENT ORGANIZATION

0 200 Feet  
 1 inch = 200 feet

wsb

# Volume Control Outcomes

## Prioritization Table – Location/Opportunity

Table J.2: BMP Project Decision Matrix and Prioritization

Concept Design (Section No./ Figure No.)	TSS Reduction (ton/yr)	TP Reduction (lbs/yr)	Rate Reduction (cfs)		Annual Maintenance Cost	Total Project Cost <sup>1</sup>	TP Pollutant Cost Benefit (\$/lb) <sup>2</sup>	TSS/ TP Reduction Score	Rate Reduction Score	TP Cost Benefit Score	Maintenance Score	Construct- ability Score	Total Score
			2-yr	10-yr									
Friendly Marsh Park Wetland Enhancement (D.4.1/D.1)	0.5	1.8	46.2	64.2	\$1,000	\$180,225	\$4,561	2	5	3	3	2	15
Valley Park Wetland Infiltration Basin (B.4.3/B.3)	1.2	4.7	10.9	12.6	\$1,500	\$183,915	\$1,884	2	4	4	2	2	14
Lower Marie Creek Wetland Enhancement (F.4.4/F.4)	8.1	24.9	0.1	0.5	\$1,500	\$146,700	\$296	3	1	5	2	3	14
Park Place Filtration Basin (A.4.3/A.3)	0.9	3.5	3.4	5.7	\$1,500	\$184,775	\$2,540	3	2	3	2	2	12
Valley Park Wetland Enhancement and Weir (B.4.4/B.4)	0.2	0.8	10.4	12.4	\$1,000	\$230,825	\$12,791	1	4	2	3	2	12
Wentworth Park Pond Expansion (E.4.3/E.3)	0.03	0.2	2	9.2	\$1,500	\$164,125	\$40,325	1	2	1	2	3	9

<sup>1</sup>The project costs listed do not include potential land or easement acquisition costs.

<sup>2</sup>The cost benefit assumes a 25-year life cycle for each BMP.

# Volume Control Next Steps – Potential Grants

Table J.2: BMP Project Decision Matrix and Prioritization

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<sup>2</sup>The cost benefit assumes a 25-year life cycle for each BMP.

## Potential Grant Application Scenario

- BWSR Water Quality & Storage Grants (~1M, more expected in 2024) - March 2024 next round
- MN DNR – Conservation Partners Legacy Grants (9M) – Wetland restoration and Re-meander
- Top Projects - TBD
  - Construction ~\$?
  - Admin/Engineering ~\$?
  - Grant request ~\$?
  - Local Match (25%) ~\$?/local Match (County, WMO, City)

# Next Steps



- County/City Trail Coordination
- Grant funding
  - Projects and Practices – BWSR
  - Water Storage – BWSR
  - Conservation Partner Legacy (CPL) – MN DNR
  - Watershed Based Implementation Funding – LMRWMO/BWSR
- Matching funds
- Allowable flow
- Long term maintenance/ownership

# Interstate Valley Creek

## Erosion Control & Volume Reduction Study

Questions?

**Joe Barten, CPSWQ**

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Administrator via Dakota County SWCD, Lower Mississippi River WMO

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