

## BCWD CIP PROGRAM

Date	1/3/2025
To / Contact info	BCWD Board of Managers
From / Contact info	John Sarafolean / EOR; Ryan Fleming, PE / EOR
Regarding	CIP Program Annual Report

### Background

In 2018, the BCWD created the Capital Improvement Program Standard Operating Procedures Manual (CIP SOPM). This manual compiled the following project information in one location so that District staff can keep track of the activities needed to operate and maintain the District's facilities.

- A. Project Location, Description, Background, and Funding
- B. Maintenance and Inspection Requirements and responsible parties
- C. Cooperative Agreements
- D. Maintenance Records and Reporting
- E. Emergency Plan and Operating Procedures
- F. Appendices (including Record Drawings and other relevant project information)

To date, the BCWD has developed a SOPM for the following projects:

1. THPP (Flood Mitigation - 2000)
2. Kismet Basin (Flood Mitigation - 2001)
3. Long Lake Neighborhood Raingardens (Water Quality – 2017)
4. State Highway 95 & 96 Fish Baffles (Habitat Improvement – 2011)
5. Oak Glen Golf Course Buffer (Habitat Improvement – 2011)
6. Iron-Enhanced Sand Filter at Settlers Glen (Water Quality – 2013)
7. Countryside Auto Repair BMP (Water Quality – 2011)
8. Brown's Creek Floodplain Restoration Project (2014)
9. Neal Avenue Neighborhood BMPs (Water Quality – 2015)
10. Brown's Creek Park Rock Crib (Water Quality – 2017)
11. Long Lake Tributary Headcut Stabilization (Water Quality – 2018)
12. McKusick Road Water Quality Improvement Project (2017)
13. Applewood Golf Course Reuse (Water Quality – 2022, in-progress)
14. Indian Hills Golf Course Fen Vegetation Management (Water Quality – 2022)
15. Oak Glen Golf Course Reuse Project (Water Quality – 2022)
16. Long Lake Shoreline Vegetation Maintenance (Water Quality and Shoreline Stabilization – 2011)
17. Brown's Creek Trail Vegetation Maintenance
18. Norell Avenue Pond Water Quality Retrofit (2016)
19. Brown's Creek tributary Floodplain Restoration (2022)
20. Kittentail / Bluff Restoration Work (2022)

This memorandum provides a summary of operations and maintenance activities conducted on the Districts Capital Improvement Projects and ongoing restoration efforts. It highlights performance metrics, project updates, challenges, and lessons learned. Recommendations or adjustments for future CIP planning is also included where applicable.

## Annual Activities

Each year, District staff inspect the projects according to the needs that were anticipated when drafting the SOPM and based on site conditions and recommendations from the previous year. The inspection findings are documented, and updates are communicated with the District Administrator.

In cases where maintenance or repairs are needed, EOR works with the Brown’s Creek Watershed District administrator and legal counsel to prepare project documents to facilitate contracting of the work.

## 2024 Activities

The following table summarizes the activities and maintenance that was conducted in 2024. Figure 1 identifies the project locations.

**Table 1. Summary of Inspection and Maintenance Activities for BCWD CIP in 2024**

<b>Project</b>	<b>Inspection Activities</b>	<b>Maintenance Activities</b>
THPP	Annual inspection of storm water sewer condition and exercising the Goggins Lake butterfly valve. Annual vegetation site assessment performed by Natural Shore.	Site vegetation herbicide treatments targeting invasive species, monthly mowing, and buckthorn foliar treatment <sup>i</sup> .
State Highway 95 & 96 Fish Baffles	Annual inspection of fish baffles condition and functionality.	None
Iron-Enhanced Sand Filter at Settlers Glen	Two seasonal full system inspections and monthly monitoring of the iron-enhanced sand filter system operation. Annual vegetation site assessment performed by Natural Shore.	Installation of Clemson Beaver Leveler to protect lift station system equipment. Installation of underdrain bulkhead to reduce short circuiting of filtered flow through spent iron media. Site vegetation herbicide treatments targeting invasive species, monthly mowing, and buckthorn foliar treatment. Flowering spotted knapweed was hand-pulled and removed from the site. <sup>i</sup>
Countryside Auto Repair BMP	Sediment depth inspections by WCD.	Sediment removal from the stormwater quality unit. <sup>ii</sup>
Brown’s Creek Park Rock Crib	Sediment depth inspections by WCD.	Sediment removal from the stormwater quality unit. <sup>ii</sup>
McKusick Road Water Quality Improvement Project	Sediment depth inspections by WCD.	Sediment removal from the stormwater quality units(3) and sump catch basins (8). <sup>ii</sup>
Oak Glen Golf Course Reuse Project	Start up and shut down inspections and procedures, and monitoring pumping data.	None

Fen at the Indian Hills Golf Course	Annual site assessment by Natural Shore Ecological Restoration.	Vegetation management including spring mowing, fall herbicide treatments targeting invasive plant species, monthly selective invasive plant mowing, and late-summer foliar buckthorn treatments. <sup>i</sup>
Brown's Creek Floodplain Restoration	Annual site assessment by Natural Shore Ecological Restoration.	Mowing of vegetation in the spring, monthly selective mowing and hand pulling of invasive species. Spring and fall herbicide treatments of invasives and volunteer woody species removal. <sup>i</sup>
Long Lake Tributary Headcut Stabilization	Annual inspection of rock checks, channel bank condition, and native vegetation.	Hand-pulling weeds, make small adjustments to rock checks by repositioning any loose rock by hand as needed.
Brown's Creek Tributary Floodplain Restoration	Annual inspection of rock checks, channel bank condition, and native vegetation.	Minnesota Native Landscapes completed their final year of vegetation maintenance per the original project contract with BCWD. The work was conducted in the fall of 2024 which included cut stump treatment of woody invasive species.
Kittentail / Bluff Restoration Work	Searches for rare plants and removal of herbaceous and woody invasive species.	Hand-pulling weeds, coordinated with WCD to remove woody invasive species in early 2024. The property is currently being transferred to Washington County (previously owned by State of MN). Future work on this property will be dependent on permission & possible partnership with Washington County staff.
Long Lake Shoreline Vegetation Management	Annual site assessment by Natural Shore Ecological Restoration.	Spring mowing of last years senesced material and removal of volunteer tree species, monthly visits throughout the growing season weed whipping and hand pulling invasive species, fall herbicide treatments of reed canary grass and broadleaf weeds. <sup>i</sup>
Kismet Basin	Annual site vegetation assessment by Natural Shore Ecological Restoration.	Spring mowing to break up thatch layer and cut down small volunteer woodies. Spring and fall herbicide applications targeting invasive plant species. Monthly select mowing non-native weeds. Regular hand

		pulling of non-native weeds including mullein and bull thistle as necessary. <sup>i</sup>
--	--	---

In addition to the activities listed in Table 1, EOR completed a performance evaluation of the Brown’s Creek Park Rock Crib.

## Performance Metrics & Project Updates

### THPP –

Two of the project objectives were flood protection for properties on the Goggins and School Section lakes, and thermal protection of the Brown’s Creek headwaters from discharged lake water. The Goggins Lake outlet hasn’t discharged since the summer of 2020, therefore these two objectives continue to be achieved, despite the record rainfall that occurred in spring and summer of 2024.

### Iron-enhanced Sand Filter at Settlers Glen (IESF) –

1. A project metrics report from 2014 to 2023 was presented to the Board in May of 2024. BCWD staff worked with St. Anthony Falls Laboratory (SAFL) research staff to analyze the filter media to estimate the degree of filtering capacity degradation and remaining filter life (estimated at approximately three years remaining).
2. Beaver activity in the area has been increasing since the tributary head cuts were repaired, and the tributaries have been able to connect with the floodplain which improves the wetland hydrology adjacent to the tributary. In predevelopment conditions, the area was a sedge/ shrub meadow and has now been colonized by young aspen trees. While the beaver activity is helping to restore the historic sedge meadow by removing the aspen trees, the rising water poses the threat of inundating sensitive flow metering equipment for the IESF pump. In December, a Clemson Beaver Leveler was installed through dam on the pump harvest pond to lower the water to an acceptable level.
3. Short circuiting of water through the upstream, more used, section of the filter to the underlying drain tile was suspected, so the upper portion of the tile was temporarily blocked to force untreated water to reach the less used areas of the filter. SAFL conducted influent and effluent sampling under various conditions, including before and after blocking the upper portion of the drain tile, as part of their ongoing IESF research. SAFL will share their sampling results and report once complete.

### Oak Glen Golf Course Reuse Project –

1. We are currently working with Tri-State Pump to have flow meter and remote communication equipment installed on the Oak Glen Golf Course well pumps and reuse system pump. This will allow precise monitoring of the reuse system and golf course water usage.

### Countryside Auto Repair Stormwater BMP, McKusick Road Water Quality Improvement Project, Brown’s Creek Park Rock Crib (four direct outfalls to Brown’s Creek) –

Sump manholes and underground Storm Water Quality Unit’s were cleaned out in December 2024. An estimated 30 tons of sediment (muck) was removed from the units which would have otherwise entered Brown’s Creek. The estimated cost per ton removed was \$1,000, or \$0.50/lb of sediment. The contractor suggested the maintenance trigger at the access ports is not representative of the amount of sediment throughout the chamber. Revising the trigger to a lower depth of sediment could reduce the amount of sediment that bypasses the trapping chamber which results in sediment flowing downstream to Brown’s Creek.

## Recommendations

In addition to the inspection and maintenance protocols established in the SOPM for each project, the following list of project recommendations includes recommendations based on the 2024 inspection findings.

1. THPP (Flood Mitigation - 2000)

Continue stormwater management facilities inspections. Continue herbicide treatments and mowings to improve aesthetics, promote the native plant ecosystem, and protect wildlife habitat. Work with landowners to improve wetland buffer and reduce edge effect and encroachment of weeds from surrounding area. Continue to promote the propagation and spread of natives throughout the area. Continue to remove undesirable tree species surrounding the Eastern ponds. Address/ fill the small cable hoist hole found in the top of the flared end structure leaving wetland A.
2. Kismet Basin (Flood Mitigation - 2001)

Continue ongoing maintenance including herbicide treatments and mowing to control aggressive or invasive species with a stronghold in the basin, such as spotted knapweed, reed canary grass, and Canada goldenrod. Encourage and aid the propagation of native plants for improved diversity and habitat in the basin area.
3. Long Lake Neighborhood Raingardens (Water Quality – 2017)

Perform an annual site inspection of all rain gardens to assess any blockages, debris build up, sedimentation, and vegetation.
4. Iron-Enhanced Sand Filter at Settlers Glen (Water Quality – 2013)

Continue complete equipment facility seasonal inspections, monthly operational inspections, and monitoring of beaver activity. Continue removal of spotted knapweed and regular mowing of other invasive or aggressive plants to promote diversity in the plant community and improve aesthetics of the site. Consider permanent drain tile check valve to prevent short circuiting once sampling results have been analyzed.
5. Brown's Creek Floodplain Restoration Project (2014)

Continue maintenance comprised of herbicide treatments and mowings to protect and improve the native plant populations. Continue to monitor and remove non-native tree and shrubs species where observed. Continue to promote the propagation of native species to improve aesthetics, add biodiversity, create habitat in the sites, and to fill in space left by removal of non-native and invasive species.
6. Neal Avenue Neighborhood BMPs (Water Quality – 2015)

Perform an annual site inspection of all rain gardens to assess any blockages, debris build up, sedimentation, and vegetation.
7. Indian Hills Golf Course Fen Vegetation Management (Water Quality – 2022)

Continue timely, ongoing maintenance including herbicide treatments and mowings to protect the native ecosystem. Monitor and record native and invasive species present throughout the fen from year to year.
8. Long Lake Shoreline Vegetation Maintenance

Continue regular maintenance to promote the propagation of native plants and progressive improvement of aesthetics, plant community, and habitat. Work to reduce the impact of pervasive weeds such as reed canary grass which are already present in sites. Monitor non-native and invasive weeds and shrubs such as buckthorn that enter from neighboring areas. Work with neighbors to reduce the impact of weed encroachment from neighboring properties. Reintroduce native plants into areas where we remove non-native species by either installing pots or seed.
9. Brown's Creek Trail Vegetation Maintenance

Continue maintenance program comprising of herbicide treatments and mowings to protect and improve the native plant populations. Continue to monitor and remove non-native tree and shrubs species where observed.

Continue to promote the propagation of native species to improve aesthetics, add biodiversity, create habitat in the sites, and to fill in space left by removal of non-native and invasive species.

10. Norell Avenue Pond Water Quality Retrofit (2016)

Coordinate a joint inspection with the City of Oak Park Heights to assess the stormwater management facilities and sedimentation of the basin.

11. Brown's Creek tributary Floodplain Restoration (2022)

Perform an annual site inspection of the rock riffles and beaver dams, vegetation assessment to determine if vegetation management is required, and coordinate with the City of Stillwater to conduct prescribed burns on a 5-7 year rotation.

12. Kittentail / Bluff Restoration Work (2022)

The property is currently being transferred to Washington County (previously owned by State of MN). Future work on this property will be dependent on permission & possible partnership with Washington County staff.

---

<sup>i</sup> Vegetation management conducted by Natural Shore Technologies Ecological Restoration

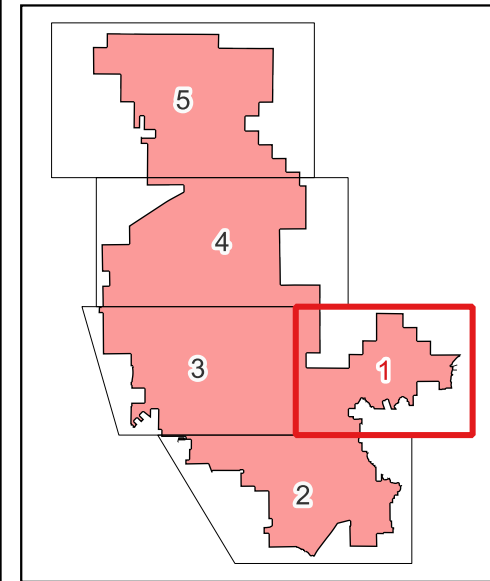
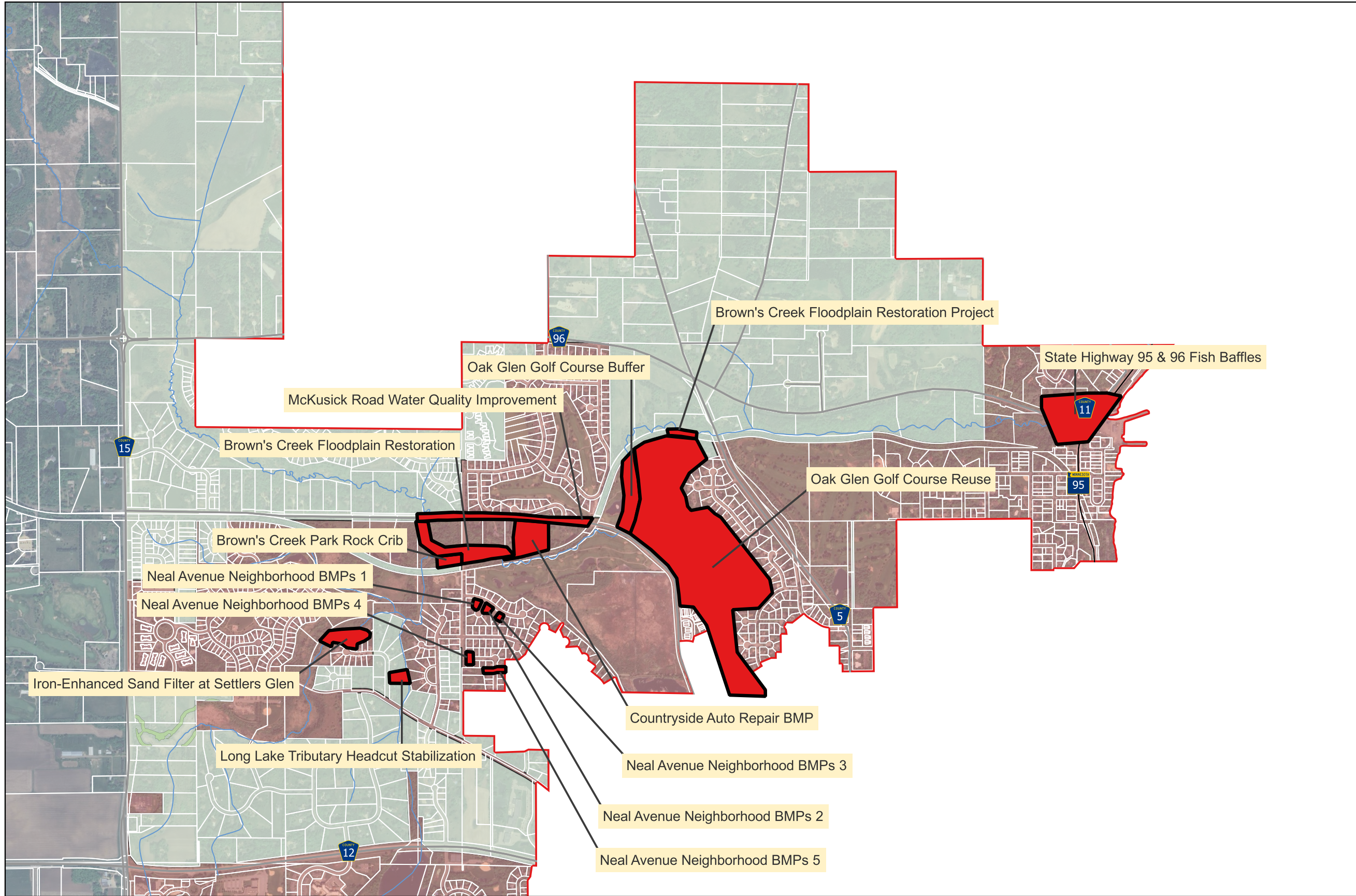
<sup>ii</sup> Sediment removal conducted by Rock Leaf Water Environmental


---

## **Appendix A**

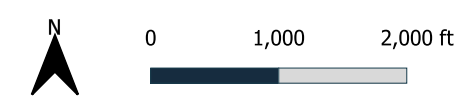
Figure 1: Atlas of watershed district CIP project locations.

Program  
CIP  
Layout:  
Mark  
Allison  
Author:  
Date:  
Document Path: X:\Clients\_WD\041\_BCWD\001\_PERMIT\_PROGRAM\09\_GIS\2024\BCWD\_Permit\_Map.cgr



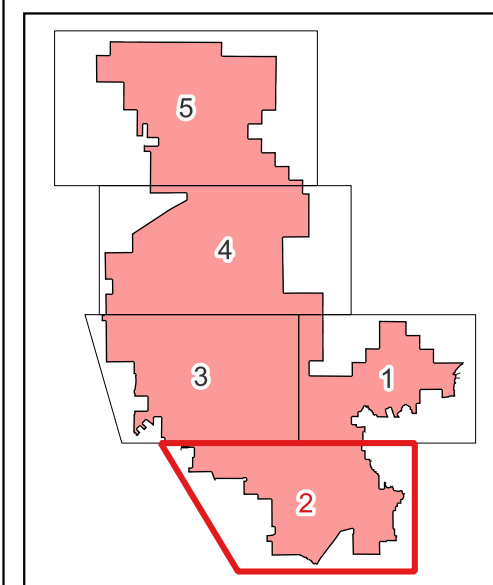
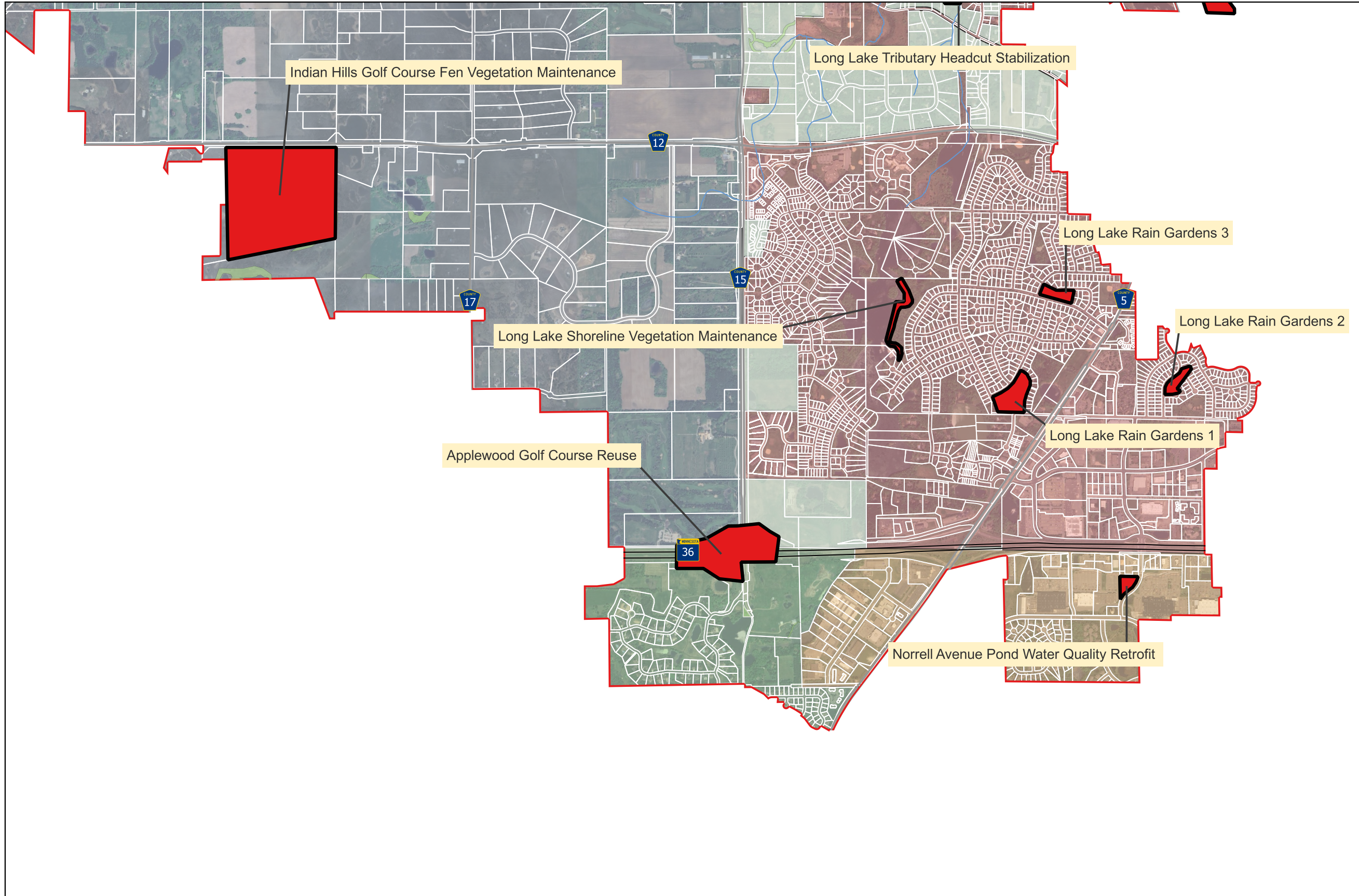
 CIP Program Project Locations


### BCWD CIP Program January 3, 2025



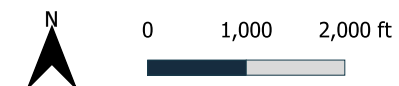


Program  
CIP  
Layout:  
Mark  
Allison  
Author:  
2025-01-03T14:32:09.263  
Document Path: X:\Clients\_WD\041\_BCWD\001\_PERMIT\_PROGRAM\09\_GIS\2024\BCWD\_Permit\_Map.cgz

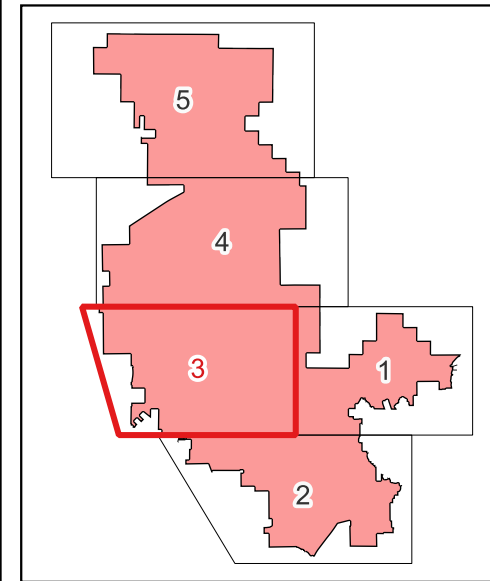
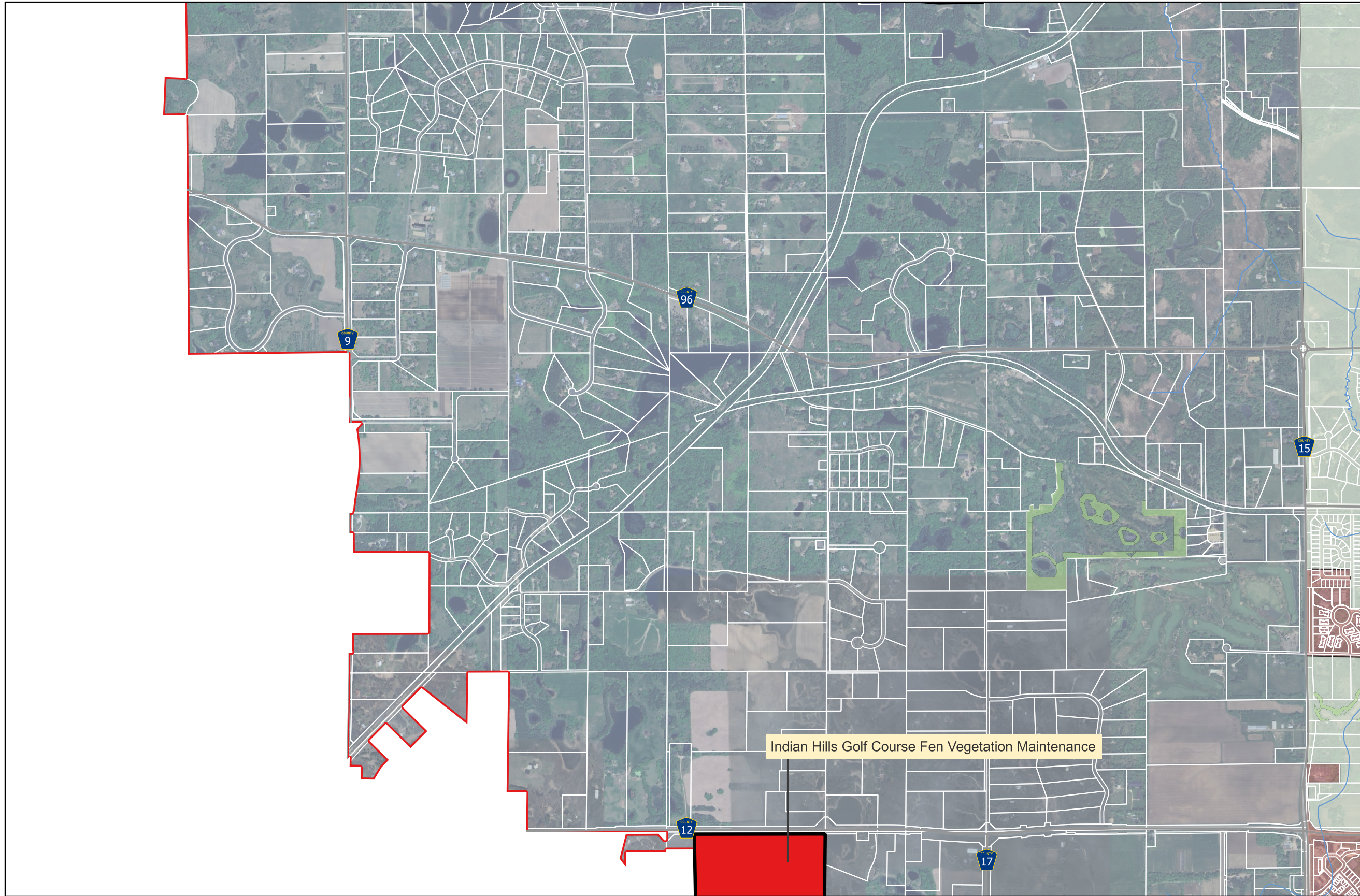



 CIP Program Project Locations

### BCWD CIP Program January 3, 2025

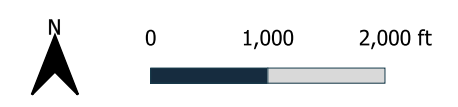


Date: 2025-01-03T14:32:13.013  
Document Path: X:\Clients\_WD\041\_BCWD\001\_PERMIT\_PROGRAM\09\_GIS\2024\BCWD\_Permit\_Map.cgr  
Author: Allison  
Mark  
Layout:  
CIP  
Program

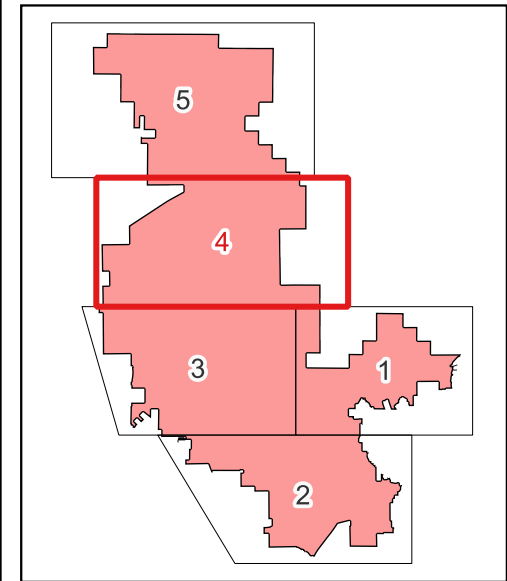
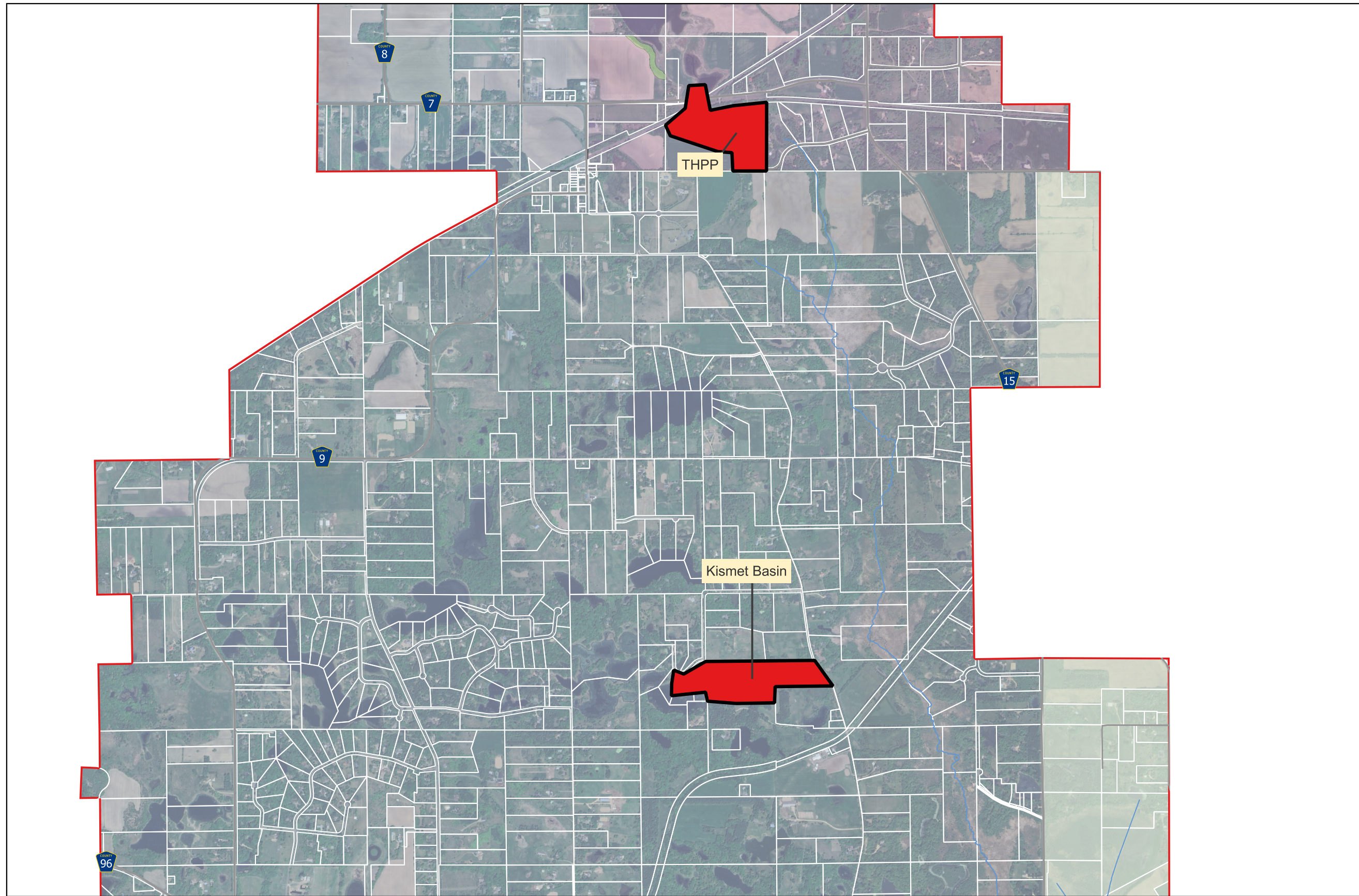



 CIP Program Project Locations

### BCWD CIP Program January 3, 2025

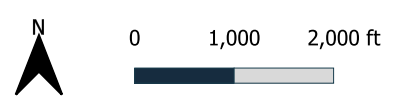


Date: 2025-01-03T14:32:16-490  
Document Path: X:\Clients\_WD\041\_BCWD\001\_PERMIT\_PROGRAM\09\_GIS\2024\BCWD\_Permit\_Map.cgx  
Author: Allison  
Mark  
Layout:  
CIP  
Program

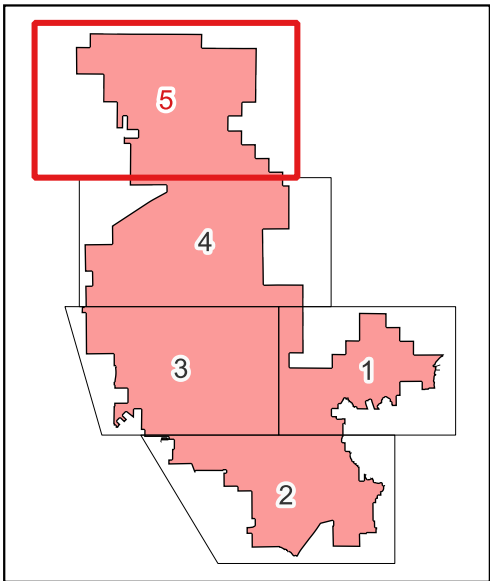
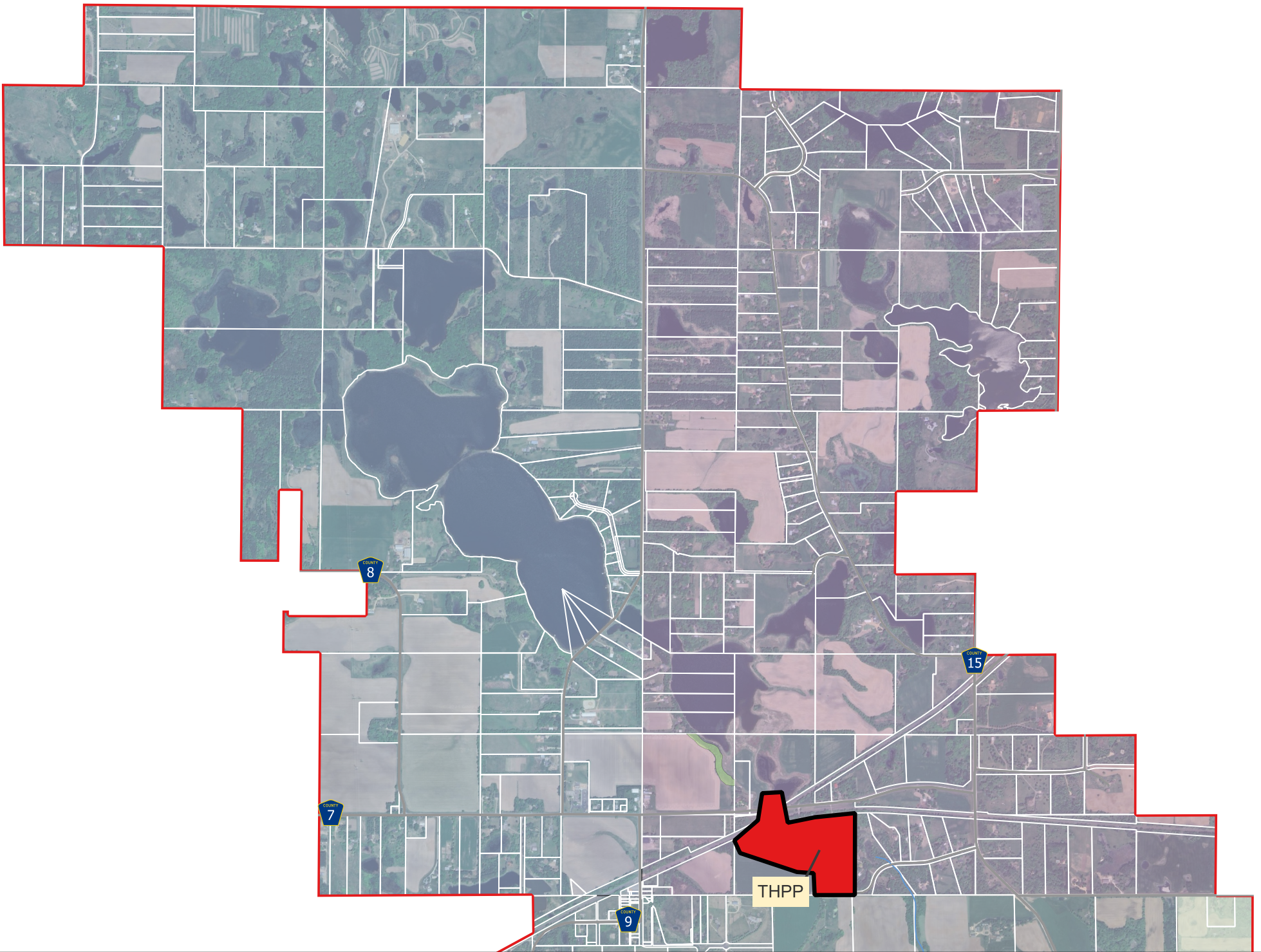



 CIP Program Project Locations

### BCWD CIP Program January 3, 2025



Date: 2025-01-03T14:32:20.033  
Document Path: X:\Clients\_WD\041\_BCWD\001\_PERMIT\_PROGRAM\09\_GIS\2024\BCWD\_Permit\_Map.cpgz  
Author: Allison  
Mark  
Layout:  
CIP  
Program



 CIP Program Project Locations

## BCWD CIP Program January 3, 2025

