3.5. Wetland Management

3.5.1. General Issue Statement

The District contains a diversity of wetland types of varied condition that perform essential functions and values. Although many wetlands are degraded, high-quality wetlands remain due to the many isolated basins and low-intensity development present in portions of the District. Several wetlands include unique plant communities to the metropolitan area located at the southern fringes of their known range (e.g. coniferous and open peatlands, soft water ponds). All of these wetlands are at risk of encroachment from various land uses to some degree. They are also at risk of degradation from land use practices that increase stormwater input and decrease groundwater contributions thereby decreasing wetland water quality, altering hydrologic patterns, and limiting wildlife habitat within and adjacent to wetlands.

3.5.2. Relevance to the District

The Brown's Creek watershed contains numerous wetlands that provide important functions such as filtering and treating runoff, storage and flood attenuation, groundwater recharge, thermoregulation, carbon sequestration, plant diversity, and wildlife, fisheries, and amphibian habitat. Many of the larger, open-water wetlands in the watershed have homes surrounding them and are valued as natural amenities similar to watershed lakes. Wetland quality is linked to the surrounding environment. Minimizing the effect of land use changes (including changes in surficial and groundwater hydrology, topography, soils, and land cover) have the potential to maintain or improve the functions and values of a wetland.

To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 26. Related Climate Change Impacts

Impact	Description	Indicators
More Extreme Precipitation Events	Heavier precipitation during rainfall events	- Prolonged flooding can degrade wetlands by changing water chemistry, introducing pollutants, and causing vegetation die-offs. Wetland ecosystems are crucial for biodiversity, but too much water can turn them into lifeless zones, reducing their ability to support wildlife.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration

Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Decreased water levels removes water from plant species accustomed to being fully or partially submerged resulting in plant die off - Plant die-off reduces habitat and ecosystem functions these plants provide for water filtration
Warming winters and fewer days below freezing (32°F)	Higher evaporation Temperature regulation Oxygen levels Waterbody stratification	- Reduced oxygen measurements - Higher temperatures can drastically affect fish, amphibians, and invertebrates

Table 27. Wetland Management opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Health and Well-Being	Access to green spaces is associated with improved physical and mental health, yet disadvantaged communities often have less access to parks, forests, and natural spaces.	- Retrofitting spaces to include more greenspace that can contribute to indirect physical and mental health outcomes. - By restoring natural landscapes and promoting green infrastructure, the BCWD can improve the quality of air and water in surrounding areas and mitigate the Urban Heat Island effect, which directly impacts public health, particularly in communities that have been historically marginalized or overlooked.
Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding.	- Reducing communities' exposure to hazards such as flooding and pollution. - Carbon sequestration (i.e., by increasing tree canopy, native vegetation, etc.)

3.5.3. Sub-Issue Areas

Wetland Functions and Values

The BCWD is committed to no net loss of wetland functions and values. The BCWD contains a variety of wetland systems that have the potential to be degraded by land use activities, agricultural practices, hobby farms, recreation, and the proliferation of Aquatic Invasive Species such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (Phalaris arundinacea), and Hybrid Cattail (Typha x glauca). For example, increased runoff may alter hydrology and water quality of a wetland with effects on capacity for water quality treatment and flood attenuation, as well as impact plant diversity/habitat quality by favoring invasive species. Altered hydrology can also affect functions such as thermoregulation and carbon sequestration. The BCWD needs to protect and enhance these resources' functions and values.

Improving Understanding of Wetland Areas

Identification of wetland restoration, enhancement, and preservation opportunities require a more in-depth understanding of the specific functions and values these wetlands provide. Inventory work to-date provides an indication that the BCWD's wetlands possess unique plant communities and water chemistry that is unique to the metropolitan area. Further study would help benefit the BCWD's understanding of these resources and how best to prioritize future investments in restoration, enhancement and preservation projects.

3.5.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

BCWD Wetland

Table 28. Wetland Management Policies, Goals, and Implementation Activities

SUB-ISSUE:	**Wetland Functions and Values**		
POLICY:	**The BCWD is committed to maintaining the functions and values of high quality wetlands and improving the functions and values of degraded and drained wetlands in the watershed.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Ensure no net loss of wetland functions and values within BCWD.	**1**	Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation and through protection of the fen groundwater recharge area.
		2	Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond. Plans would include strategies to reduce watershed nutrient loading and internal phosphorus loading. Maintain or improve water quality within the large, open-water wetlands within the watershed to reduce nuisance level algae blooms and preserve healthy aquatic plant communities.
		3	Monitor and mitigation potential source points of nutrient loading from aging septic system infrastructure on shoreline properties.
		4	Modify the Rules to require high replacement ratios for high quality wetlands within the district
		5	Update the District rules to replace Minnesota Routine Assessment Menthod (MnRAM) with the Wetland Assessment Tool (WAT) when finalized
		6	*Addressed through administration of the BCWD regulatory standards and criteria.*
B	Enhance the functions and values of the District's degraded wetlands	**1**	Restore wetland on Mendel Road tributary.
		2	Conduct restoration and enhancement of high priority wetlands
C	Continue to support the Wetland Conservation Act (WCA)	**1**	Continue to serve on the Technical Evaluation Panel for WCA.
D	Protect the quantity and quality of buffers around the wetlands in the District.	**1**	Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.
		2	Improve the quality of buffers identified as poor quality in the District's Wetland Inventory.
		3	*Addressed through administration of the BCWD regulatory standards and criteria.*
E	Contain and reduce the spread of Aquatic Invasive Species (AIS)	**1**	Collaborate with partners on AIS management
SUB-ISSUE:	**Improving Understanding of Wetland Areas**		
POLICY:	The BCWD is committed to furthering its understanding of its wetland resources utilizing the most current methodology for function and value assessment and current research		
GOALS		**IMPLEMENTATION ITEM**	
A	Improve the Districts understanding of its wetland resources	**1**	Conduct annual assessments of a subset of district wetlands to improve accuracy of the extrapolated wetland classification from the 2024 Function Value Inventory Reclassification
		2	Conduct further investigations on the soft water characteristics of the Districts wetland resources

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Wetland 'C' – Trout Habitat Protection Project

Table 29. Projected Expenditures (in 1,000's) for Wetland Management Practices

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Maintain the high-level functions and values of the District's fen through vegetation management to control the encroachment of invasive vegetation on the wetland and through protection of the fen groundwater recharge area.	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	35
Develop Pond Management Plans for the following large ponds within the District that have not previously been addressed: Pat Lake, Heifort Pond, Sinnits (Jackson WMA) Pond, Bass Lake West, Kismet Basin, July Avenue Pond, Brewers Pond.	--	--	5	5	5	5	5	5	5	5	40
Conduct restoration and enhancement of high priority wetlands as identified in the Wetland Function and Value Assessment (2007).	--	--	--	--	50	--	--	--	--	--	50
Develop GIS database of recorded buffers (through permitting program) and monitor extent and condition of buffers.	--	--	3	--	0.5	--	0.5	--	0.5	--	4.5
Improve the quality of buffers in priority wetlands as identified in the District's Wetland Functions and Values Assessment.	--	--	10	--	--	10	--	--	10	--	30
Total for Wetland Management	**3.5**	**3.5**	**21.5**	**8.5**	**59**	**18.5**	**9**	**8.5**	**19**	**8.5**	**159.5**

Table 30. Wetland Management Implementation Activities from Table 20 addressed by Administrative and/or Project Development Program

Restore wetland on Mendel Road tributary.
Continue to serve on the Technical Evaluation Panel for WCA.

3.8. Ecological Health

3.8.1. General Issue Statement

The restoration and protection of the District's surface water resources requires a healthy watershed where the natural cover supports hydrologic and geomorphic processes, habitat of sufficient size and quality to support native aquatic species and riparian species, and water quality that supports healthy biological communities. The BCWD shares discoveries of unique and sensitive plants and animals to increase awareness of the value of protecting healthy watersheds and improve understanding of management actions needed to avoid adverse impacts.

3.8.2. Relevance to the District

The BCWD is home to several unique ecosystems which provide habitat for rare and sensitive plant and animal communities. Given the rate at which land use changes have occurred in the eastern part of the Twin Cities Metropolitan Area, the watershed still has a number of high-quality resources which warrant protection.

To-date the BCWD has focused a significant amount of effort on the protection and restoration of Brown's Creek, a cold-water fishery located on the boundary of the Twin Cities Metropolitan Area. Given its designation as a cold-water fishery, Brown's Creek has been actively managed by the Minnesota DNR as a trout stream and a significant amount of attention has been given to the trout population of the creek. In addition to the trout, the Brown's Creek corridor supports a variety of unique and rare species such as Rainbow Darter (*Etheostoma caeruleum*), Blanding's Turtle (*Emydoidea blandingii*), and coldwater dependent macroinvertebrates. The steep topography, geologic setting, and high quality vegetation of the Brown's Creek Gorge supports Walking Fern (*Asplenium rhizophyllum*), Butternut (*Juglans cinerea*), and foraging and nesting habitat for Louisiana Waterthrush (*Parkesia motacilla*).
More recently, the BCWD has been focusing on its lakes, ponds and wetlands. Lake management activities have resulted in the discovery of Snailseed Pondweed (*Potamogeton bicupulatus*), an endangered aquatic plant which indicates the need to better understand the water chemistry of these lakes and the management activities needed to sustain these sensitive species. Similarly, a wetland inventory conducted in 2024 resulted in the discovery of a Cranberry Bog (Northern Shrub Shore Fen) which is home to carnivorous round leaved sundew, bog cranberry, and a continuous carpet of sphagnum moss. The presence of these rare species is an indication of the watershed system's health and the need for protection by the BCWD as well as private landowners.

To date, the BCWD has focused its management efforts on impacts related to land use changes in the watershed. Given the changes seen locally, nationally and world-wide, the BCWD is broadening its focus by considering impacts related to climate change (see Table X) and the benefits a healthy watershed provides to economic and social well-being (see Table X).

Table 40. Impacts of climate change on Ecological Health

Impact	Description	Indicators
Extreme Heat	Extreme heat increases evaporation rates, drying up water sources such as ponds, rivers, and wetlands.	- Reduced reproductive success: Heat stress can lower reproductive success by reducing the fertility of animals or the survival rates of eggs and offspring. For example, heat waves can cause nest abandonment or reduce the hatching success of eggs in birds, reptiles, and amphibians. - Disruption of aquatic habitats: Reduced water levels in rivers, lakes, and streams can threaten fish and other aquatic organisms, as these species depend on specific water conditions for survival. Warmer water temperatures can also reduce dissolved oxygen levels, stressing or killing aquatic life. - Proliferation of invasive species: Some invasive species, including certain plants, insects, and animals, thrive in hotter conditions and may outcompete native species, altering ecosystems and threatening biodiversity. Invasive insects, such as bark beetles, have devastated forests weakened by heat stress.
Warming winters and fewer days below freezing (32°F)		- Increasing presence of species traditionally found further south while traditional northern species die out - Invasive Species Expansion: Fewer cold days can help invasive species, which are often better adapted to warmer conditions, survive and spread. This can have serious consequences for native wildlife by altering habitat structure and resource availability. - Plants and insects that emerge earlier due to fewer cold days may not synchronize with the life cycles of their pollinators or herbivores. - Warmer winters with more frequent rain can cause increased soil erosion in upland areas, leading to higher sediment loads in water bodies.
Extreme Precipitation	Washington County has and will continue to experience more wet conditions caused by increased precipitation. Precipitation increases are occurring in each season of the year, with the largest increases in spring and summer.	- Wetland areas or floodplains might become permanently submerged, reducing the amount of usable land for species like small mammals, ground-nesting birds, and reptiles. - Intense rainfall can cause soil erosion, particularly on slopes or deforested areas. Erosion leads to loss of plant cover, which is

	Not only has precipitation increased, but the intensity and frequency of large events have also increased.	essential for shelter, food, and nesting for many animals. - Extreme rainfall can lead to streambank erosion, which destroys habitats for aquatic and semi-aquatic animals such as amphibians, fish, and birds. Fish spawning sites can be disrupted as sediment buries eggs or larvae. - Increased water flow in rivers and streams can wash away aquatic organisms, disrupt breeding areas, and destroy the structure of habitats. - Excessive sediment in water can cover the river or lakebed, smothering fish eggs, aquatic plants, and invertebrates that are crucial to the food chain. This degradation can reduce biodiversity and the health of aquatic ecosystems. - Extreme rainfall washes nutrients (like nitrogen and phosphorus from fertilizers) and pollutants (like pesticides, heavy metals, and waste) into water bodies. - Disturbed landscapes and flooded areas can become ideal for invasive species to spread, often outcompeting native plants. - Wildlife and plant species that require specific conditions (e.g., dry soil, stable habitats) may be outcompeted by more generalist species, leading to a decline in biodiversity.
Drought	Extended period(s) of no or minimal precipitation impacting the supply of water	- Habitat fragmentation: As animals move to find water, they may cross human-dominated landscapes, leading to more road crossings, vehicle collisions, and habitat fragmentation. - Aquatic ecosystems are especially vulnerable to drought. Reduced water levels and higher temperatures can drastically affect fish, amphibians, and invertebrates. - Drought weakens plant root systems, increasing soil erosion and leading to long-term vegetation loss. The loss of vegetation increases soil erosion, which can lead to the degradation of habitats, particularly in areas prone to wind or water erosion. - Drought can lead to long-term shifts in species composition and biodiversity, favoring drought-tolerant species over more sensitive ones. - Soil degradation: Heat and drought can degrade soil health, leading to erosion, reduced fertility, and the loss of organisms

		that contribute to nutrient cycling. This can have long-term consequences for ecosystem productivity and resilience.

Table 41. Ecological Health opportunities which intersect with DEI principles

Impact	Description of the Need	How Ecological Health can help
Equitable access to clean water	A healthy watershed ensures that water is clean, reliable, and accessible to all communities, regardless of their socio-economic status, race, or geographic location.	- By maintaining clean lakes, ponds, wetlands, streams and groundwater the Brown's Creek watershed supports basic services that are critical to the well-being of all communities, particularly those that may not have the resources to combat pollution or environmental degradation.
Environmental Justice	Environmental justice seeks to address the unfair distribution of environmental benefits and burdens, particularly for communities that have been historically marginalized or overlooked.	- Healthy watershed management can prioritize including voices from marginalized communities, ensuring they have a say in decisions that affect their local environment. This leads to policies that reflect the needs of diverse communities and prevent further environmental inequities.
Inclusive Economic Benefits	Economic disparities are often tied to environmental degradation, with disadvantaged communities being most affected by poor watershed health. Inclusive watershed management can provide economic opportunities for all populations.	- Healthy watersheds contribute to healthier ecosystems that can support recreation, tourism, and other economic activities. - Ensuring that water quality improvement projects are implemented equitably and impacts to property values. - Investments in watershed restoration and maintenance can lead to the creation of sustainable jobs, from restoration work to green infrastructure development, benefiting local economies. These jobs should be accessible to underrepresented groups, creating pathways for economic inclusion.
Community Engagement and Empowerment	DEI in environmental planning requires inclusive processes where diverse communities have the opportunity to participate in the design and implementation of watershed management efforts.	- Healthy watershed initiatives can actively engage community members from diverse backgrounds in decision-making, planning, and restoration activities. This includes reaching out to underrepresented groups, hosting culturally relevant events, and providing education in multiple languages to ensure that all voices are heard. - Communities that are engaged in watershed health are empowered to take ownership of their local environment. Supporting leadership opportunities within minority and underserved groups ensures that they are involved in the long-term sustainability of their water resources.

Climate Resilience and Vulnerability	Climate change disproportionately affects marginalized communities, who are more vulnerable to extreme weather events, droughts, and flooding—all of which are linked to watershed health.	- Healthy watersheds act as natural buffers against the impacts of climate change by regulating water flow, preventing flooding, and maintaining groundwater supplies. Ensuring that these benefits are distributed equitably can help vulnerable communities better withstand the impacts of climate change. - Watershed management plans can focus on areas where communities face the highest risk of climate impacts. By prioritizing these areas, managers can ensure that historically marginalized communities are not left more vulnerable to environmental disasters.
Cultural and Recreational Inclusion	Diverse cultural and recreational needs must be considered in the management of water resources, ensuring that all communities have access to natural spaces that support their well-being and traditions.	- Many Indigenous communities and other ethnic groups have deep cultural ties to water bodies and natural ecosystems. A healthy watershed protects these areas, preserving important cultural and spiritual sites. - Healthy watersheds support outdoor recreational activities such as fishing, swimming, and hiking, which should be accessible to all communities. Watershed management can ensure that parks, lakes, and rivers are open and safe for use by all demographic groups, promoting inclusivity in nature-based recreation.
Education and Outreach	Promoting awareness of water issues and stewardship opportunities must reach diverse audiences to build a more inclusive environmental movement.	- Watershed programs can include targeted education efforts that reach diverse communities, particularly those historically excluded from environmental education. Programs in schools, community centers, and local organizations can raise awareness about the importance of water conservation and offer opportunities for all groups to engage in watershed protection. - Ensuring that educational materials and outreach efforts are available in multiple languages and are culturally relevant is critical for engaging diverse communities in watershed health. This fosters a sense of inclusivity and participation in water resource management.

3.8.3. Sub-Issue Areas

Degraded Fisheries

A healthy fish community is an indicator of resource health, and also an important component to maintaining a high-quality aquatic resource. Environmental stressors continue to threaten the integrity of the watershed's fish-supporting resources. These stressors can include metals, nutrients, sediment, temperature, and Aquatic Invasive Species (AIS).

Protect and Restore the Function of Upland Areas

The BCWD is home to several plant and animal species that are sensitive and valuable from an ecological standpoint. These plant and animal species are indicators of a healthy watershed which is a reflection of the land use in the rural portions of the watershed, resulting in more intact upland areas. The BCWD intends to protect and enhance these upland areas in order to maximize the ecosystem services (i.e., soil health improvements, filtration, groundwater recharge, wildlife habitat, rate control) provided by this part of the landscape.

Invasive Species

Invasive species continue to spread throughout the region. Some invasive species pose direct risks to water resources within lakes and wetlands, while others pose indirect impacts in upland areas where they impact land cover and soil health. For example, Common buckthorn (*Rhamunus cathartica*) negatively impacts the understory which results in soil erosion and increased nutrient and sediment loads to downstream resources. Managing species that negatively impact the water resources plays an important role in maintaining the ecological integrity of the watershed.

3.8.4. Policies, Goals, and Implementation

The policies, goals, and implementation items related to these sub-issue areas are summarized in the following tables. The sub-issue area is identified in a heading, followed by a related policy. The goals addressing that policy are lettered and stated, followed by the implementation items for that goal. This format is intended to clearly display how each policy and goal will be addressed.

Table 42. Ecological Health Policies, Goals, and Implementation Activities

SUB-ISSUE:	**Degraded fisheries**		
POLICY:	**BCWD aims to support a robust and healthy fishery as a vital component to ecological health.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Promote healthy and diverse fish communities represented by species representative of the MNDNR lake or stream classifications	**1**	Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.
		2	Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.
		3	Work with the DNR to develop a fish stocking plan
		4	Work with community groups (e.g. Stillwater High School and Trout Unlimited) to develop fish rearing plans
B	TSS loads within the contributing drainage area need to be reduced by 74% on average in order to meet these loading limits. (Brown's Creek TMDL Implementation Plan, EOR, 2012)	**1**	Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).
		2	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER BROWN'S CREEK MANAGEMENT PLAN (TABLE 61)**
C	Restore impaired lakes so that they meet state standards for total phosphorous, chlorophyll A concentration and Secchi depth.	**1**	**SEE IMPLEMENTATION ACTIVITIES IDENTIFIED UNDER LAKE MANAGEMENT PLAN (TABLE 62)**
D	Achieve the TP Load Reduction goal of 148 lbs. established at the Diversion Structure as identified in the McKusick Lake and Lily Lake Management Plans.	**1**	Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.
E	Identify and preserve important aquatic wildlife habitat and fish spawning areas	**1**	Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.
		2	Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.
			Removal of fish barriers?
			Creation of fish refugia?
SUB-ISSUE:	**Protect and Restore the Function of Upland Areas**		
POLICY:	**The BCWD is committed to maintaining the ecological integrity and connectivity of intact ecosystems.**		
GOALS		**IMPLEMENTATION ITEM**	

A	Preserve, conserve, and restore natural resources by implementing sustainable practices that promote biodiversity and healthy ecosystems (Washington County Natural Resource Systems Framework).	**1**	Implement native plant community preservation and restoration projects utilizing the District's land protection priorities.
		2	Enhance the management of the BCWD's ecosystem services by implementing pollinator conservation strategies (e.g. recognize and support exemplar projects which restore and enhance habitat for pollinator species, work with road authorities to control invasives and promote establishment of pollinator species, work with county and municipalities to develop mowing plan and schedule that is more conducive to stormwater management and pollinator species)
		3	Work with the City of Stillwater and area residents to conduct on-going monitoring of the oak forest found on the west side of Long Lake (identified as a Rare Feature) to evaluate its quality, and if any management activities are needed to ensure its sustainability.
		4	Improve ecosystem services by creating a program that focuses on restoring forests, wetlands, and grasslands to help reduce the impacts of climate change, such as flooding, heat islands, and soil erosion.
		5	Work with municipalities to establish tree preservation goals and requirements.
		6	Work with landowners to diversify their woodlands through forest management plans
B	Turf to native plant conversion goal. Enhancing ecosystem services of the landscape. Greater native/natural space vegetation requirement. More resilient landscape for wet/dry conditions.	**1**	Identify target area and criteria for priority habitat conversion areas.
		2	Consider rule change to allow credits for turf conversion
		3	Implement through the cost-share program
		4	EMWREP education and outreach
SUB-ISSUE:	**Invasive Species**		
POLICY:	**The District takes an active role in preventing the spread of invasive species through education, partnerships, monitoring, and invasive species management projects.**		
GOALS		**IMPLEMENTATION ITEM**	
A	Initiate and support aquatic invasive species (AIS) management projects on private and public lands where connected to water quality management	**1**	Continue to monitor aquatic invasive species and implement controls when it's determined to be a water quality issue.
		2	Record the location of invasive species and implement control measures if it's determined to have water quality impacts or threats to native plant communities.
		3	Address aquatic invasive species management by providing education and outreach to residents and individuals recreating in the watershed.
		4	Utilize the cost-share program to assist with invasive species management where there is a water quality benefit and/or co-benefit towards other beneficial goals.
		5	Support initiatives by the County and other regional partners on AIS management.

		6	Education and outreach regarding bait disposal and pet release.
B	Initiate and support terrestrial invasive species management projects on private and public lands where connected to water quality management	**1**	Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition. A minimum of 5 wetland and 5 upland plots should be established for long-term monitoring.
		2	Provide public and private landowners with tools and resources needed to manage existing habitat, improve species diversity, and protect against invasive species, erosion, and overuse (LSCR1W1P).

[Turf to native plant conversion image]

Table 43. Projected Expenditures (in 1,000's) for Ecological Health

Implementation Activities	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Yr. Total
Conduct additional sampling on Brown's Creek to determine the population status and distribution of the Rainbow darter in the gorge.	2	--	--	--	2	--	--	--	2	--	6
Continue surveys for mussels in the lower gorge, particularly upstream of the 2015 unique Species Inventory survey area. Many riffles in the lower gorge have not been surveyed.	--	--	2.5	--	--	--	--	--	--	2.5	5
Compile a herptile record database developed from available records and initiate citizen volunteer Amphibian and Reptile Survey.	--	--	--	3.5	--	--	--	--	--	--	3.5
Implement native plant community preservation and restoration projects utilizing District's land protection priorities.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Enhance management of BCWD's ecosystem services by implementing pollinator conservation strategies.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	5
Continue to monitor aquatic invasive species & implement controls when it's determined to be a water quality issue.	--	--	1	1	1	1	1	1	1	1	8
Record the location of terrestrial exotic and invasive species and implement control measures if it's determined to have water quality impacts.	--	--	1	1	1	1	1	1	1	1	8
Conduct on-going vegetation surveys (every five years) to evaluate community quality and invasive species to provide a more robust dataset that can be used to evaluate trends in plant community composition: min. of 5 wetland and 5 upland plots should be established for long-term monitoring.	--	--	10	--	--	--	--	5	--	--	15
Total for Ecological Health	**3**	**1**	**15.5**	**6.5**	**5**	**3**	**3**	**8**	**3**	**7.5**	**55.5**

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Table 44. Ecological Health Implementation Activities from Table 30 addressed by East Metro Water Resource Education Program

Address AIS management by providing education and outreach to individuals recreating in the watershed.

Table 45. Ecological Health Implementation Activities from Table 30 where implementation costs covered under another Issue Category

Implementation Activity	Issue Category where implementation cost is identified (Table #)
Utilize the District's cost-share program to assist in the implementation of Lake Management Plans through best management practice installation by citizens - Cost identified in Implementation Activity X under Stormwater Management.	Stormwater Management (Table 5)
Re-assess water quality data collected in contributing drainage area to Diversion Structure to evaluate pollutant loading and identify sources.	Stormwater Management (Table 5)
Promote stormwater reuse by working with local businesses, local units of government and Washington County to incorporate BMPs into new development or redevelopment projects.	Stormwater Management (Table 5)
Conduct fish barrier assessment to determine potential for fish passage through 95 / 96 box culverts in 2016, then determine fish passage through remaining road crossings to Manning avenue if no barrier present in the gorge.	Stream Management (Table 13)
Annually analyze progress toward the TSS reduction goal based on evaluation of the collected monitoring data (conducted as part of the baseline monitoring program).	Stream Management (Table 13)
Utilize the cost-share program to assist with invasive species management where there is a water quality benefit.	Stormwater Management (Table 5)