

FEMA Damage #	Name	Damage Description	Estimated Scope	Latitude	Longitude	Hazard Mitigation	Alt Project	Hazzard Mitigation Concept Scope	Cost Estimate	Flood Event	% from FEMA 4/23	% from State 9/23	% from FEMA 6/24	Bridges Structua I	Civil	Specialt y Trails
1350831	Site #07 Mission Creek Trail	upstream erosion and deposition of eroded materials on the trail's crushed bluestone rock surface and loss of common fill material	• Reestablish trail tread to designed width of 4' and seed and stabilize sloughs abovev trail. • 5.56 CY of Common Fill. Effluvium Deposits left on trail surface., 120 FT long x 5 FT wide x 0.25 FT deep. • 888.88 CY of Common Fill. Eroded and slide common fill material lost from area above the trail., 150 FT long x 80 FT wide x 2 FT deep	46.66592	-92.28526	X		Seed and mulch landslide areas contributing to deposition on trail	\$3,324	FEMA April 2023	100					X
1350831	Site #08 Mission Creek Trail	upstream erosion and deposition of eroded materials on the trail's crushed bluestone rock surface and loss of common fill material	• reestablish trail tread to designed width of 4' and seed and stabilize sloughs abovev trail. • 2.07 CY of Common Fill. Effluvium Deposits left on trail surface., 67 FT long x 5 FT wide x 2 IN deep. • 1,111.11 CY of Common Fill. Eroded and slide common fill material lost from area above the trail., 150 FT long x 100 FT wide x 2 FT deep	46.66845	-92.28747	X		Seed and mulch landslide areas contributing to deposition on trail		FEMA April 2023	100					X
1350831	Site #08A Mission Creek Trail	upstream erosion and deposition of eroded materials on the trail's crushed bluestone rock surface and loss of common fill material	• reestablish trail tread to designed width of 4' and seed and stabilize sloughs abovev trail. • .84 CY of Common Fill. Effluvium Deposits left on trail surface., 92 FT long x 5 FT wide x 2 IN deep. • 666.67 CY of Common Fill. Eroded and slide common fill material lost from area above the trail., 150 FT long x 60 FT wide x 2 FT deep	46.66761	-92.28629	X		Seed and mulch landslide areas contributing to deposition on trail		FEMA April 2023	100					X
1350832	Site #1a Hartley Trail	loss of surface trail crushed bluestone rock	• 1.53 CY of Bluestone 1/2 inch crushed rock. Surface 1/2 inch crushed rock., 11 FT long x 7.5 FT wide x 0.5 FT deep	46.83837	-92.0834		X	relocate trail out of flood plain	\$8,000	FEMA April 2023	72	28				X
1350832	Site #1b Hartley Trail	loss of surface trail crushed bluestone rock	• 6 CY of Bluestone 1/2 inch crushed rock. Surface 1/2 inch crushed rock., 170 FT long x 5 FT wide x 0.159 FT deep	46.83785 46.83789	-92.08494 -92.08437		X	relocate trail out of flood plain		FEMA April 2023	72	28				X
1350832	Site #1b Hartley Trail Boardwalks #1	Boardwalks dislodged	• Superstructure - 1 each of Bridge - wooden trail, 26 FT long x 5 FT wide x 10 IN deep, 4 each of Green Treated. • Bridge substructure wood beams., 9 FT long x 2 IN wide x 6 IN deep. Deck - 18 each of Green Treated. • Bridge wood decking., 5 FT long x 2 IN wide x 6 IN deep. Guard Rail - 2 each of Green Treated. • Bridge wood decking edge board., 9 FT long x 4 IN wide x 4 IN deep	46.83785 46.83789	-92.08494 -92.08437		X	relocate trail out of flood plain		FEMA April 2023	X	X				X
1350832	Site #3A Spirit Mountain - Culvert: Roller Coaster	loss of material around the 12 inch in diameter CMP culvert	• Scour/Undermining, 10.67 CY of Common Fill. Eroded-out Material from Around Culvert., 9 FT long x 8 FT wide x 4 FT high, • 10.22 CY of Common Fill. Eroded-out Material from Ditch Downstream from Culvert., 23 FT long x 6 FT wide x 2 FT high. Armor, • 1 CY of Riprap - 12 inch in diameter. Culvert - Lost Riprap from Around the Culvert and Plunge Area., 9 FT long x 3 FT wide x 1 FT high	46.71378	-92.2155	X		Upsize culvert, relocate away from footing	\$35,000	FEMA April 2023	100				X	
1350832	Site #3B Spirit Mountain - Culvert: Ski Hill	loss of riprap downstream of the 36 inch in diameter RCP culvert, loss of material around the 12 inch in diameter CMP culvert	• Armor, 1.33 CY of Riprap - 16 inch in diameter. Lost Riprap from Around the Culvert and Plunge Area., 8 FT long x 3 FT wide x 1.5 FT high. • Scour/Undermining, 1.19 CY of Common Fill. Eroded-out Material from Around the Left Side of the Culvert., 8 FT long x 2 FT wide x 2 FT high, • 2.67 CY of Common Fill. Eroded-out Material from Around the Right Side of the Culvert., 8 FT long x 3 FT wide x 3 FT high	46.71786	-92.21094				\$5,000	FEMA April 2023	100				X	
1350839	Site #3a Mission Creek Snowmobile Trail	erosion damage to the trails and ancillary features	• 12.34 CY of Common Organic Fill. Common Organic Fill - 50% Pit Run, 50% Topsoil., 40 FT long x 10 FT wide x 0.833 FT deep., • 31.62 CY of Common Organic Fill. Common Organic Fill. - 50% Pit Run, 50% Topsoil. , 160 FT long x 8 FT wide x 0.667 FT deep	46.69043 46.69043	-92.27819 -92.27853	X		lift and tilt trail toward ditch, clean out ditches where necessary, grade reversals where necessary, cap surface with class V	\$11,000	FEMA April 2023	100				X	
1350839	Site #3B Mission Creek Snowmobile Trail	erosion damage to the trails and ancillary features	• 4.15 CY of Common Fill. Common Fill. , 8 FT long x 7 FT wide x 2 FT deep • 32.2 CY of Common Organic Fill. Common Organic Fill. - 50% Pit Run, 50% Topsoil. , 980 FT long x 1.33 FT wide x 0.667 FT deep	46.68977 46.68785	-92.27983 -92.28209	X		lift and tilt trail toward ditch, clean out ditches where necessary, grade reversals where necessary, cap surface with class V	\$8,500	FEMA April 2023	70	30			X	
1350839	Site #3c Mission Creek Snowmobile Trail	erosion damage to the trails and ancillary features	• 17.73 CY of Common Organic Fill. Common Organic Fill. - 50% Pit Run, 50% Topsoil. , 720 FT long x 1.33 FT wide x 0.5 FT deep	46.68771 46.68774	-92.28551 -92.28286	X		lift and tilt trail toward ditch, clean out ditches where necessary, grade reversals where necessary, cap surface with class V	\$12,500	FEMA April 2023	100				X	
1358045	Site #1 Amity Trail	Embankment failure, pit run, lost rip rap	• Surface, 1.48 CY of 1/2 inch Fine Grade. Bluestone Gravel., 32 FT long x 5 FT wide x 0.25 FT thick, • 9.63 CY of Black Dirt. Topsoil., 65 FT long x 16 FT wide x 0.25 FT thick, • 10 CY of 30 inch Minus. Reposition Riprap., 10 FT long x 9 FT wide x 3 FT thick, • 18.1 CY of 6 inch Minus. Riprap., 65 FT long x 15 FT wide x 0.5 FT thick. Base, • 4.44 CY of Trail Mix. Common Fill., 32 FT long x 5 FT wide x 0.75 FT thick. Embankment, • 85.77 CY of Pit Run. Common Fill., 65 FT long x 15 FT wide x 2.375 FT thick	46.85588	-92.02276	X		living shoreline	\$7,000	FEMA April 2023	100				X	
1358045	Site #2 Amity Trail	Embankment failure	• 340.74 CY of Reposition Natural Bank Material. Common Fill., 50 FT long x 23 FT wide x 8 FT thick	46.85618	-92.02406	X		living shoreline	\$8,520	FEMA April 2023	75	25			X	
1358045	Site #6 Big Kahuna Snowmobile Trail	erosion damage to the trail and left deposits in the stream beds	• 5.79 CY of Common Organic Fill - 50% Pit Run, 50% Topsoil. Common Organic Fill., 158 FT long x 3 FT wide x 0.33 FT thick	46.74436	-92.19162	X		add limestone or vegetate	\$5,000	FEMA April 2023	100				X	
1358045	Site #5 Brewer Park	erosion damage to the trail and left deposits in the stream beds	• Surface - 9.53 CY of Common Organic Fill - 50% Pit Run, 50% Topsoil. Common Organic Fill., 130 FT long x 6 FT wide x 0.33 FT thick, • 86.67 SY of MnDOT Roadside Mix. Seeding., 130 FT long x 6 FT wide	46.76279	-92.17512	X		rolling grade dip at top of slope to divert water off of trail	\$7,500	FEMA April 2023	100				X	
1358045	Site #4 Chester Creek Trail Bridge	washout at 8th/9th st bridge. erosion damage to the trail and left deposits in the stream beds	• Embankment, 74.07 CY of Pit Run. Common Fill., 25 FT long x 10 FT wide x 8 FT thick, • 22.22 CY of Pit Run. Common Fill., 20 FT long x 6 FT wide x 5 FT thick. Surface, • 18.52 CY of 24 inch minus. Riprap., 25 FT long x 10 FT wide x 2 FT thick, • 1.3 CY of Limestone - 2 inch minus angled. Riprap., 14 FT long x 5 FT wide x 0.5 FT thick, • 1.03 CY of Limestone Trail Gravel. , 14 FT long x 6 FT wide x 0.33 FT thick. • Geotextile., 27.78 SY of Artificial Spun. Soil Fabric., 25 FT long x 10 FT wide. Post., • 4 each of Green Treated. 2 inch x 6 inch x 2 feet (L)., 2 FT long x 2 IN wide x 6 IN high. Lumber - Sawn., • 3 each of Green Treated. 2 inch x 6 inch x 8 feet (L)., 8 FT long x 2 IN wide x 6 IN high	46.80696	-92.08835	X		curb diversion and volume reduction structure	\$111,000	FEMA April 2023	60	20	20		X	

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1358045	Site #3 Hartley Trail	Debris and sediment deposits, strem channel damage	• Surface - 1.25 CY of 1/2 inch Fine Grade. Bluestone Gravel., 17 FT long x 6 FT wide x 0.33 FT thick, • 0.93 CY of 1/2 inch Fine Grade. Bluestone Gravel., 10 FT long x 5 FT wide x 0.5 FT thick. Base, • 0.93 CY of Pit Run. Common Fill., 10 FT long x 5 FT wide x 0.5 FT thick. Main Stream Channel., • 10.37 CY of Effluvium. Debris and sediment deposits. , 20 FT long x 14 FT wide x 1 FT thick. • Secondary Stream Channel 4.81 CY of Effluvium. Debris and sediment deposits. , 13 FT long x 5 FT wide x 2 FT thick. • Tertiary Stream Channel., 2.52 CY of Effluvium. Debris and sediment deposits. , 17 FT long x 4 FT wide x 1 FT thick	46.83858	-92.08348	X		Clean addiotnal debris out of channel, remove invasive willow biomass, raise boardwalk	\$8,800	FEMA April 2023	100					X
1358045	Site #7a Superior Zoo Kingsbury Trail	erosion damage to the trail and left deposits in the stream beds	• Surface, 11.5 CY of MnDOT Class 5 Road Gravel. Gravel., 828 FT long x 1.5 FT wide x 0.25 FT thick. Base, • 26.82 CY of Pit Run. Common Fill., 828 FT long x 1.5 FT wide x 0.583 FT thick	46.72831	-92.19592	X		divertt water, lift and tilt trail toward ditch, top dress with class V where needed	\$99,280	FEMA April 2023	100				X	
				46.72734	-92.19346											
1358045	Site #7b Superior Zoo Kingsbury Trail	erosion damage to the trail and left deposits in the stream beds	• Surface, 5.19 CY of MnDOT Class 5 Road Gravel. Gravel., 280 FT long x 2 FT wide x 0.25 FT thick. Base, • 5.19 CY of Pit Run. Common Fill. , 280 FT long x 2 FT wide x 0.25 FT thick	46.72917	-92.19595	X		divertt water, lift and tilt trail toward ditch, top dress with class V where needed		FEMA April 2023	100				X	
				46.72936	-92.19679											
1358045	Site #7c Superior Zoo Kingsbury Trail	erosion damage to the trail and left deposits in the stream beds	• Surface, 0.97 CY of MnDOT Class 5 Road Gravel. Gravel., 70 FT long x 1.5 FT wide x 0.25 FT thick. Base, • 0.65 CY of Pit Run. Common Fill., 70 FT long x 1.5 FT wide x 0.167 FT thick	46.72956	-92.19806	X		divertt water, lift and tilt trail toward ditch, top dress with class V where needed		FEMA April 2023	44	56			X	

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N/A	42nd Avenue East Beach	trail surface lost	• 14 CY of base/bluestone 380 LF trail washed out 2' deep	46.821425	-92.03857778	Y		Maybe, might be able to divert stormwater runoff from the street away from trail	\$10,000	State Septemeber 2023		100			X	X
N/A	Amity Creek Hawk Ridge Trail (Jean Duluth to Skyline) Site #1	willow leaning up against bridge 2 on 7-Bridges road	replace lost soil and stabilize banks, repalce gravel in trail and grade out	46.8560028	-92.02442222	Y		Yes, consider adding living bank stabilization to sloughed areas with root wads and plantings, retreat trail from creek	\$5,000	State Septemeber 2023	75	25			X	
N/A	Amity Creek Hawk Ridge Trail (Jean Duluth to Skyline) Site #2	Amity Horse Trail: sloughing and gravel loss in two locations	replace lost soil and stabilize banks, repalce gravel in trail and grade out	46.8580917	-92.01969444	Y		Yes, consider adding living bank stabilization to sloughed areas with root wads and plantings, retreat trail from creek		State Septemeber 2023	75	25			X	
N/A	Amity Creek South Side Trail (Vermilion to Jean Duluth)	bank sloughing into creek below trail x2 locations 10 cy soil lost each site	stabilize banks	46.8453889	-92.05710278	Y		Yes, consider adding living bank stabilization to sloughed area with root wads and plantings	\$15,000	State Septemeber 2023		100			X	
N/A	Brewer Park Snowmobile Trail	Trail washout	fill with gravel, dust with topsoil, grade out and plant and stabilize. 6" deep 90' long 12" wide - 2 CY lost	46.7625722	-92.17232778	n		No	\$5,000	State Septemeber 2023		100			x	
N/A	Brewer-Haines snowmobile bridge	Riprap abutment failed under the bridge and sloughed into creek	lift bridge and reset riprap	46.7625722	-92.17231389	Y		Yes, possible replace footing with concrete footings or helical piles	\$50,000	State Septemeber 2023		100		x	x	
N/A	Central Entrance Trail, Brewery Creek Culvert	Stones and gravel fell towards culvert	Path damaged is 20 LF; 20 rocks each side need to be placed; 20 yards class 5 to fill	46.7987972	-92.11874167	y		Yes, upsize culvert and add larger riprap	\$10,000	State Septemeber 2023		100			x	
N/A	Chester Culvert at 8th/9th Bridge	washout coming down from 8th-9th bridge culvert showing with limestone trail surface lost	repair culvert if needed, reset and clean out concrete pipe if needed and restore trail stabilize and plant bank	46.8066667	-92.08833333	y		Yes, consider rate structure at street curb to lessen flow rates and look to divert surface runoff that is not going into the stormwater system	\$37,000	State Septemeber 2023	60	20	20		x	
N/A	Chester Hiking Trails Below Skyline Site #10	timber turnpike pike washed out and needs repair	repair hole and fill with stone and concrete, reset boardwalks, add rip rap on either side of washed out concrete structure x2, unclog stone arch culvert, repair trail sloughs	46.8106472	-92.08980556	y		Yes, consider upsigns clogged culverts and add rip rap at inlets and outlet, reroute trail where sloughs occurred	\$15,000	State Septemeber 2023		50	50			x
N/A	Chester Hiking Trails Below Skyline Site #11	trail sloughed into creek, creek bank lost	repair hole and fill with stone and concrete, reset boardwalks, add rip rap on either side of washed out concrete structure x2, unclog stone arch culvert, repair trail sloughs	46.8056444	-92.08812222	y		Yes, consider upsigns clogged culverts and add rip rap at inlets and outlet, reroute trail where sloughs occurred		State Septemeber 2023		100				x
N/A	Chester Hiking Trails Below Skyline Site #7	trail slough and soil lost	repair hole and fill with stone and concrete, reset boardwalks, add rip rap on either side of washed out concrete structure x2, unclog stone arch culvert, repair trail sloughs	46.8048806	-92.08660833	Y		Yes, consider upsigns clogged culverts and add rip rap at inlets and outlet, reroute trail where sloughs occurred		State Septemeber 2023		100				x
N/A	Chester Hiking Trails Below Skyline Site #8	culvert clogged	repair hole and fill with stone and concrete, reset boardwalks, add rip rap on either side of washed out concrete structure x2, unclog stone arch culvert, repair trail sloughs	46.8068972	-92.08845278	y		Yes, consider upsigns clogged culverts and add rip rap at inlets and outlet, reroute trail where sloughs occurred		State Septemeber 2023	60	20	20			x
N/A	Chester Hiking Trails Below Skyline Site#9	sink hole in trail below bridge	repair hole and fill with stone and concrete, reset boardwalks, add rip rap on either side of washed out concrete structure x2, unclog stone arch culvert, repair trail sloughs	46.8127083	-92.09161111	?		Yes, consider upsigns clogged culverts and add rip rap at inlets and outlet, reroute trail where sloughs occurred		State Septemeber 2023		100				x
N/A	Chester Trails Above Skyline Site #1	16" culvert exposed trail scoured,	restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8160722	-92.09856111	Y		Yes, to service road add ditches with rock checks	\$50,000	State Septemeber 2023		50	50		x	
N/A	Chester Trails Above Skyline Site #2	bluestone washed out onto baseball field trail scoured, agrilime washed away in ball field,	20 CY Bluestone, restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8142472	-92.09814722	Y		Yes, to service road add ditches with rock checks		State Septemeber 2023		100			x	
N/A	Chester Trails Above Skyline Site #3	trail from gravel pit down to soccer field washed out 5CY,	restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8130833	-92.09861944	Y		Yes, to service road add ditches with rock checks		State Septemeber 2023		100			x	
N/A	Chester Trails Above Skyline Site #4	127' long trail scour,	restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8125333	-92.09846944	Y		Yes, to service road add ditches with rock checks		State Septemeber 2023		100			x	
N/A	Chester Trails Above Skyline Site #5	culvert exposed,	restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8122944	-92.09824444	Y		Yes, to service road add ditches with rock checks		State Septemeber 2023		100			x	
N/A	Chester Trails Above Skyline Site #6	Site #6 300' scour on service road	restore damaged culverts, regrade damaged trails and add soil and gravel where needed,	46.8113	-92.09781111	y		Yes, to service road add ditches with rock checks		State Septemeber 2023		100			x	
N/A	Congdon Park Bridal Path Site #1	200 LF of limestone pathway washed out	bring in limestone and restabish pathway	46.8208333	-92.06666667	y		Yes, could use some ditching to divert water away from trail, add steps where the trail gets steep	\$15,000	State Septemeber 2023		100				x
N/A	Congdon Park Bridal Path Site #2	erosion at western trailhead access points	bring in limestone and restabish pathway	46.8219444	-92.06861111	n				State Septemeber 2023		100				x
N/A	Congdon Park Bridal Path Site #3	erosion at eastern trailhead access points	bring in limestone and restabish pathway	46.8188889	-92.06277778	n				State Septemeber 2023		100				x
N/A	Hartley Park Site #1	Rotary bridge below dam blown out	Reset helicle piles; replace 40' bridge; replace 250' boardwalk; restore 600' bluestone pathway	46.8375	-92.08361111	y		Yes, full replacement of bridge, reroute bluestone ABA trail out of floodplane, reduce boardwalk infrastructure	\$145,000	State Septemeber 2023		100		x		
N/A	Hartley Park Site #2	BA bluestone trail blown out w/ boardwalks	Reset helicle piles; replace 40' bridge; replace 250' boardwalk; restore 600' bluestone pathway	46.8377778	-92.08527778	y		Yes, full replacement of bridge, reroute bluestone ABA trail out of floodplane, reduce boardwalk infrastructure		State Septemeber 2023	50	50				x
N/A	Hartley Park Site #3	tributary 7 has 1 boardwalk dislodged, bluestone lost, debris cleanup	Reset helicle piles; replace 40' bridge; replace 250' boardwalk; restore 600' bluestone pathway	46.8383333	-92.08333333	y		Yes, full replacement of bridge, reroute bluestone ABA trail out of floodplane, reduce boardwalk infrastructure		State Septemeber 2023	50	50				x
N/A	Kingsbury Creek	channelization top to bottom, gravel loss; spring flood area	1,140 LF of channelization and gravel lost, 12' wide x 6' deep = 21 CY Class 5 gravel	46.7294444	-92.19805556	y		Yes, site needs ditching and trail should be crowned	\$100,000	State Septemeber 2023	44	56			x	

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N/A	Lester River Concrete Snomobile Bridge	soil approaches washed out on both sides about 50 CY; east concrete abutment undermined	repair washouts and assess structure for safety, replace lost soils and riprap	46.8491667	-92.00559167	y		Yes, use rip rap at aproaches to armor washed out areas, wrap undermined footing with concrete skirt where undermined	\$25,000	State Septemeber 2023		100		x		
N/A	Lester River Hiking Trail	trail washout 4 CY of gravel surfacing, at overlook parking area waterfall, another 4 CY of limestone lost in parking area	regrade and import new gravel and stabilize downslope of parking area, new limestone added to parking area	46.8444139	-92.00345	y		Yes, add a culvert under parking lot to divert water from going over lot onto trail connecting ditch on both sides	\$10,000	State Septemeber 2023		100			x	
N/A	Lester River Timber Pedestrian Bridge	timber bridge chords cracked, lumber railings lost, concrete/stone abutments damaged, metal approach railings damaged and lost, approach steps damaged, lots of debri needs removal and is pinned up against bridge	replace bridge and damaged elements	46.8421667	-92.005475	y		Yes, structure needs to be raised and lengthened to allow more flow underneath, needs structraul analysis and engineering servies to assess	\$190,000	State Septemeber 2023		100		x		
N/A	Lester Ski Trails Site #2		repalce culverts where apporpriate replace soil where needed	46.8601333	-92.00984167	y		Yes, upside culverts and add riprap at outlets and inlets	\$75,000	State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #1	culvert exposed and washed out	repalce culverts where apporpriate replace soil where needed	46.86035	-92.01027222	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #10	clean out culvert and bank failure adjacent to trail edge	repalce culverts where apporpriate replace soil where needed	46.8568611	-92.006375	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #11	exposed and plugged	repalce culverts where apporpriate replace soil where needed	46.8596583	-92.00626111	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #12	culvert exposed needs resetting	repalce culverts where apporpriate replace soil where needed	46.8599528	-92.00616667	?		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #13	reset 36" culvert lost 15CY soil	repalce culverts where apporpriate replace soil where needed	46.8650778	-92.0145	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #3	12" culvert needs resetting	repalce culverts where apporpriate replace soil where needed	46.8571361	-92.00798611	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #4	gravel lost scour down trail	repalce culverts where apporpriate replace soil where needed	46.8545528	-92.01136389	n				State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #5	scour soil lost	repalce culverts where apporpriate replace soil where needed	46.8559389	-92.00591667	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #6	culvert washed over exposed and scoured	repalce culverts where apporpriate replace soil where needed	46.8560639	-92.00588611	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #7	culvert exposed needs resetting	repalce culverts where apporpriate replace soil where needed	46.8563	-92.00589167	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #8	reset 8" culvert	repalce culverts where apporpriate replace soil where needed	46.8573944	-92.00546389	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Ski Trails Site #9	culvert exposed soil lost	repalce culverts where apporpriate replace soil where needed	46.8576694	-92.00503333	y		Yes, upside culverts and add riprap at outlets and inlets		State Septemeber 2023		100			x	
N/A	Lester Snowmobile Trail Site #1	20 CY soil lost on trail surface washed onto bridge and bridge needs cleaning off	up size culverts where apporpriate, replace soil where needed, stabilize failed bank and vegetation/stabilization using BMPs	46.8627639	-92.01371389	y		Yes, upside culverts and add riprap at outlets and inlets, consider adding living bank stabilization to sloughed area with root wads and plantings	\$12,500	State Septemeber 2023		100			x	
N/A	Lester Snowmobile Trail Site #2	large sloughed bank west side above bridge 3 off of Seven Bridge Road	up size culverts where apporpriate, replace soil where needed, stabilize failed bank and vegetation/stabilization using BMPs	46.8540361	-92.01247222	y		Yes, upside culverts and add riprap at outlets and inlets, consider adding living bank stabilization to sloughed area with root wads and plantings		State Septemeber 2023		100			x	
N/A	Mission Creek Parkway	300' trench gravel lost from trail surface		46.6888889	-92.28027778	y		Yes, reshape trail to allow water to runoff the edges every 50' and outslope trail surface	\$15,000	State Septemeber 2023	70	30			x	
N/A	Piedmont Ski Trails	washouts above culverts, soil lost	reoplace lost soil and reset culverts if needed	46.7702778	-92.15972222	y		upside culverts if necessary	\$5,000	State Septemeber 2023		100			x	
N/A	Spirit Mountain Site #2	culverts on alpine runs 7&8,		46.7177778	-92.21111111	y			\$7,000	State Septemeber 2023	90	10			x	
N/A	Spirit Mountain Site #3	Alpine coaster abutment being washed away by misplaced culvert		46.7133333	-92.21555556	y				State Septemeber 2023		100			x	
N/A	Tree Farm	reset culvert on snowmobile trail, replace lost fill and rip-rap		46.8736111	-92.05805556	y		Yes, Upsize damaged culvert, add rip rap	\$20,000	State Septemeber 2023		100			x	

FEMA Damage #	Name	Damage Description	Estimated Scope	Latitude	Longitude	Hazard Mitigation	Alt Project	Hazzard Mitigation Concept Scope	Cost Estimate	Flood Event	% from FEMA 4/23	% from State 9/23	% from FEMA 6/24	Bridges Structua I	Civil	Specialt y Trails
1399130	Site 2I Chester Creek Nordic Bridge	significant erosion and scouring of the west side trail resulted in loss of the rip rap under the right and left abutment	• Rip rap, 16.67 CY of rip size 12 to 24-inch, 12.5 FT long x 12 FT wide x 3 FT deep, Rip rap, • 8.33 CY of rip size 12 to 24-inch, 12.5 FT long x 6 FT wide x 3 FT deep	46.815953	-92.098327	X		Thicken slab, larger riprap	\$15,000	FEMA June 2024			100		X	
1399130	Site 2G Chester Creek West Side Trail	significant erosion and scouring of the west side trail resulted in loss of the culvert, significant erosion and scouring of the west side trail resulted in loss of the embankment, significant erosion and scouring of the west side trail resulted in loss of the stream bank armor stone	• Culvert, 8-inch plastic, 1 each of culvert 8-inch diameter by 6-feet long, 6 FT long x 8 IN in diameter, • Embankment, 2.22 CY of natural soil, 10 FT long x 4.5 FT wide x 16 IN deep, • Stream bank armor stone, 12 each of natural stone, 2-foot by 2-foot by 2-foot stone	46.810623	-92.089735		X	retreat trail from creek		FEMA June 2024			100			X
1399130	Site 2H Chester Creek West Side Trail	significant erosion and scouring of the west side trail resulted in loss of the trail embankment, significant erosion and scouring of the west side trail resulted in loss of the creek rip rap	• Embankment, 8.15 CY of natural soil, 55 FT long x 4 FT wide x 1 FT deep, • Rip rap, 12.22 CY of rip size 12 to 24-inch, 55 FT long x 4 FT wide x 1.5 FT deep	46.810953	-92.090022		X	retreat trail from creek		FEMA June 2024			100			X
1399130	Site 2A Chester Park 8th/9th st washout	significant erosion and scouring of the stairs	• Timber cribbed stairs, 3.56 CY of 2-in minus, pit-run gravel, 4 FT long x 4 FT wide x 6 FT deep, • 1.78 CY of 1/4 minus, Bluestone surface gravel, 4 FT long x 4 FT wide x 3 FT deep	46.806979	-92.088256°	X		curb diversion and volume reduction structure	\$37,000	FEMA June 2024	60	20	20		X	
1399130	Site 2B Chester Park 8th/9th st washout	significant erosion and scouring of the of the timber stairs	• Timber cribbed stairs, 2 each of treated timbers , 6-inches by 6-inches by 10-feet long, • 0.98 CY of 2-inch minus pit-run gravel, 4 FT long x 10 FT wide x 8 IN deep	46.806979°	-92.088256°	X		curb diversion and volume reduction structure		FEMA June 2024	60	20	20		X	
1399130	Site 2C Chester Park 8th/9th st washout	significant erosion and scouring of the trail below the stairs	• Hiking trail below stairs, 5.56 CY of base, 2-inch minus pit-run gravel, 60 FT long x 5 FT wide x 6 IN deep, • 1.85 CY of 1/4-inch minus Bluestone surface, 60 FT long x 5 FT wide x 2 IN deep	46.806979°	-92.088256°	X		curb diversion and volume reduction structure		FEMA June 2024	60	20	20		X	
1399130	Site 2D Chester Park 8th/9th st washout	significant erosion and scouring of the embankment	• Bridge abutment, 9.07 CY of natural soil, 7 FT long x 5 FT wide x 7 FT deep	46.806979°	-92.088256°	X		curb diversion and volume reduction structure		FEMA June 2024	60	20	20		X	
1399130	Site 2E Chester Park 8th/9th st washout	loss of the culvert	• Culvert, 1 each of 24-inch RCP, 24-inch diameter RCP, 60-foot long	46.806979°	-92.088256°	X		curb diversion and volume reduction structure		FEMA June 2024	60	20	20		X	
1399130	Site 2F Chester Park 8th/9th st washout	significant erosion and scouring of the embankment, significant erosion and scouring of the left, downstream creek embankment adjacent to the bridge abutment	• Embankment, 10.56 CY of natural soil, 19 FT long x 5 FT wide x 3 FT deep, • Rip rap covers both Site 2E and Site 2F, 25.93 CY of 12- inch minus rip rap, 30 FT long x 20 FT wide x 14 IN deep, Rip rap covers both Site 2E and Site 2F, 600 SF of geotextile fabric, 30 FT long x 20 FT wide	46.806979°	-92.088256°	X		curb diversion and volume reduction structure		FEMA June 2024	60	20	20		X	
1399130	Site 1 Hawk Ridge Power Line Trail	gravel washout out from trail	• 7.96 CY of base, pit-run gravel, 215 FT long x 1 FT wide x 1 FT deep, • 13.14 CY of surface 1/4-inch minus Bluestone, 215 FT long x 5 FT wide x 4 IN deep, • 1,075 SF of geotextile fabric, 215 FT long x 5 FT wide	46.84411	-92.039792	X		Diversion berm at top of hill	\$5,000	FEMA June 2024			100		X	
				46.843535	-92.03971											
1399130	Site 3A Lake Superior Zoo Kingsbury Bridge	significant erosion and scouring of the west side trail resulted in under mining of the bridge foundation, significant erosion and scouring of the west side trail resulted in under mining of the bridge downstream wing wall base, significant erosion and scouring of the west side trail resulted in loss of the downstream corner of the wing wall	• Rip rap, 0.39 CY of natural stone, mortared, 7 FT long x 1 FT wide x 1.5 FT deep, Quarried stone, • 0.3 CY of quarried stone, mortared, 7.5 FT long x 1 FT wide x 1.5 FT deep, Quarried stone, • 0.42 CY of quarried stone, mortared, 2 FT long x 2 FT wide x 1 FT deep	46.725815	-92.192211				\$30,000	FEMA June 2024			100	X		
1399130	Site 3B Lake Superior Zoo Kingsbury Stream Retaining Wall	Retaining wall washout	• Quarried stone, 3 CY of quarried stone, mortared, 17 FT long x 3 FT wide x 1.5 FT deep, Embankment, • 3 CY of natural soil, 9 FT long x 3 FT wide x 3 FT deep	46.725744	-92.192399					FEMA June 2024			100		X	
1399130	Site 3C-1 Lake Superior Zoo Kingsbury Stream Retaining Wall	significant erosion and scouring of the multiuse trail resulted in the development of a sink hole along the retaining wall	• Retaining wall, 4 CY of quarried stone, mortared, 15 FT long x 4.5 FT wide x 1.5 FT deep	46.725043	-92.192747					FEMA June 2024			100		X	
1399130	Site 3C-2 Lake Superior Zoo Kingsbury Stream Retaining Wall	significant erosion and scouring of the multiuse trail resulted in loss of a segment of the retaining wall	• Retaining wall, 3 CY of quarried stone, mortared, 19 FT long x 2.25 FT wide x 1.5 FT deep	46.725043	-92.192747					FEMA June 2024			100		X	
1399130	Site 3D Lake Superior Zoo Kingsbury Stream Retaining Wall	significant erosion and scouring of the multiuse trail resulted in loss of a segment of the retaining wall	• Retaining wall, 2 CY of quarried stone, mortared, 11 FT long x 3 FT wide x 1.5 FT deep	46.724907	-92.192885					FEMA June 2024			100		X	
1399131	Site 01 Brewery Creek	culvert and trail washout	• 25'X40'X20' Class V plus blacktop. • 10 cu yards riprap.	46.7988	-92.11873°	X		upsize culvert, add larger riprap	\$70,000	FEMA June 2024			100		X	
1399131	Site 09A-1 Lincoln Park Bridge	significant erosion and scouring of and loss of a segment of stone retaining wall	• 5 CY of quarried stone, mortared, 8 FT long x 3 FT wide x 5 FT deep	46.767133	-92.137206	X		downdrain pipe from culvert outlet to creek	\$50,000	FEMA June 2024			100		X	
1399131	Site 09A-2 Lincoln Park Bridge	significant erosion and scouring of the retaining wall creating a sink hole number 1	• 1 CY of natural soil, 3 FT long x 2 FT wide x 1 FT deep	46.767133	-92.137206	X		downdrain pipe from culvert outlet to creek		FEMA June 2024			100		X	
1399131	Site 09A-3 Lincoln Park Bridge	significant erosion and scouring of the retaining wall creating a sink hole number 2	• 1 CY of natural soil, 15 FT long x 1 FT wide x 1.5 FT deep	46.767133	-92.137206	X		downdrain pipe from culvert outlet to creek		FEMA June 2024			100		X	
1399131	Site 09B Lincoln Park Bridge	significant erosion and scouring of the catch basin resulting in the loss of the rip rap	• 2 CY of rip rap, 12-inch minus, 7 FT long x 7 FT wide x 1 FT deep	46.767133	-92.137206	X		downdrain pipe from culvert outlet to creek		FEMA June 2024			100		X	
1399131	Site 10A Lincoln Park Trail	significant erosion and scouring of the catch basin resulting in the loss of a trail segment	• 102 CY of natural soil	46.767606	-92.137228	X		downdrain pipe from culvert outlet to creek		FEMA June 2024			100		X	
1399131	Site 10B Lincoln Park Trail	significant erosion and scouring of the catch basin resulting in the loss of the culvert under the trail	• 1 each of culvert, 16-inch CMP, 10 FT long x 16 IN in diameter	46.767606	-92.137228	X		downdrain pipe from culvert outlet to creek		FEMA June 2024			100		X	



FEMA Damage #	Name	Damage Description	Estimated Scope	Latitude	Longitude	Hazard Mitigation	Alt Project	Hazzard Mitigation Concept Scope	Cost Estimate	Flood Event	% from FEMA 4/23	% from State 9/23	% from FEMA 6/24	Bridges Structua I	Civil	Specialt y Trails
1399131	Site 11A Mission Creek Trail	significant erosion and scouring of the catch basin resulting in the loss of the soils over and below the culvert	• 33 CY of natural soil, 25 FT long x 10 FT wide x 3.5 FT deep	46.677536	-92.284633	X		Upsize culvert and add rip rap	\$10,000	FEMA June 2024			100		X	
1399131	Site 11B Mission Creek Trail	significant erosion and scouring of the catch basin resulting in the loss of the soils over and below the culvert	• 1 each of culvert, RCP, 28 FT long x 15 IN in diameter	46.677536	-92.284633	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 11C Mission Creek Trail	significant erosion on the hiking trail resulting in loss of soil on the trail	• 5 CY of natural soil, 122 FT long x 1 FT wide x 12 IN deep	46.666711	-92.264375	X		Upsize culvert and add rip rap	\$7,500	FEMA June 2024			100			X
1399131	Site 02 Piedmont Park Snowmobile Trail	significant erosion and scouring of the trail embankment	104 CY of natural soil, 20 FT long x 35 FT wide x 4 FT deep	46.763126	-92.170002	X		Upsize culvert and add rip rap	\$93,000	FEMA June 2024			100		X	
1399131	Site 03 Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment on the upstream side of the culvert, significant erosion and scouring of the trail embankment on the downstream side of the culvert, significant erosion and scouring of the trail embankment	1 CY of natural soil, 6 FT long x 2 FT wide x 1 FT deep, 1 CY of natural soil, 6 FT long x 2 FT wide x 1 FT deep, 2 CY of natural soil, 10 FT long x 7 FT wide x 6 IN deep	46.766468	-92.169608	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 04 Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment on the upstream side of the culvert, significant erosion and scouring of the trail embankment on the downstream side of the culvert, significant erosion and scouring of the trail embankment	• 1 CY of natural soil, 2 FT long x 1 FT wide x 1 FT deep, • 1 CY of natural soil, 2 FT long x 1 FT wide x 1 FT deep, • 11 CY of natural soil, 25 FT long x 11 FT wide x 1 FT deep	46.766825	-92.170999	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 05A Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment	• 9 CY of natural soil, 27 FT long x 12 FT wide x 9 IN deep	46.766447	-92.169256	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 05B Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment downstream of the culvert	• 5 CY of natural soil, 8 FT long x 3 FT wide x 5.25 FT deep	46.766447	-92.169256	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 06 Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment	• 9 CY of natural soil, 19 FT long x 12 FT wide x 1 FT deep	46.764908	-92.165994	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 07A Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in a sink hole above the culvert	• 1 CY of natural soil, 3 FT long x 16 IN wide x 6 IN deep	46.77313	-92.159966	X		Upsize culvert and add rip rap		FEMA June 2024			100		X	
1399131	Site 07B Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in erosion and loss of soil downstream of the culvert	• 1 CY of natural soil, 6 FT long x 1 FT wide x 1 FT deep	46.77313	-92.159966	X		upsized culvert, rip rap at inlets and outlets with flared end sections		FEMA June 2024			100		X	
1399131	Site 08A Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in erosion and loss of soil downstream left side under the wooden bridge	• 3 CY of natural soil, 12 FT long x 5 FT wide x 1 FT deep	46.769944	-92.162311	X		upsized culvert, rip rap at inlets and outlets with flared end sections		FEMA June 2024			100		X	
1399131	Site 08B Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in erosion and loss of rip rap downstream left side under the wooden bridge	• 3 CY of rip rap 12-inch minus, 12 FT long x 5 FT wide x 2 FT deep	46.769944	-92.162311	X		upsized culvert, rip rap at inlets and outlets with flared end sections		FEMA June 2024			100		X	
1399131	Site 08C Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in erosion and loss of the embankment downstream right side under the wooden bridge	• 3 CY of natural soil, 12 FT long x 2 FT wide x 1 FT deep	46.769944	-92.162311	X		upsized culvert, rip rap at inlets and outlets with flared end sections		FEMA June 2024			100		X	
1399131	Site 08D Piedmont Park Trail Nordic	significant erosion and scouring of the trail embankment resulting in tree debris upstream of the wooden bridge	• 2 CY of tree debris, 3 FT long x 3 FT wide x 6 FT deep	46.769944	-92.162311	X		upsized culvert, rip rap at inlets and outlets with flared end sections		FEMA June 2024			100		X	
1399132	Site 1 Hartley Nature Center ABA Trail - Trib 7	significant erosion and scouring of the trail	• 4.67 CY of base, • 3.08 CY of surface, • 252 SF of geotextile fabric, • 2-inch minus pit-run gravel, 42 FT long x 6 FT wide x 6 IN deep, • 3.08 CY of surface, • 1 CY of debris removal, 3 FT long x 3 FT wide x 3 FT deep	46.838004	-92.083269	X		raise bridge, clean out debris in channel	\$50,000	FEMA June 2024			100			X
1399132	Site 2 Hartley Nature Center ABA Trail - Trib 7	significant erosion and scouring of the trail	• Bridge approach gravel, 1.22 CY of 1/4-inch minus Bluestone gravel, 20 FT long x 5 FT wide x 4 IN deep	46.83769	-92.085923	X		replace with boardwalk		FEMA June 2024			100			X
1399133	Site 1 Amity Creek Bridge #7	Loss of the bridge face stone, grouted rip rap, armor stone	• 3 each of 3 face stone approximate 3-inches thick by 1-foot square, • 216 SF of tuck-point the grouted joints of the face stone on the upstream face of the bridge, 36 FT long x 6 FT wide, • 100 SF of tuck-point the grouted joints of the face stone on the left, upstream face of the bridge abutment, 10 FT long x 10 FT wide, • 1 CY of grouted rip rap on the left, upstream left bridge abutment, 2 FT long x 2 FT wide x 2 FT deep, • 1 CY of grouted rip rap on the left, upstream left embankment, 3 FT long x 2 FT wide x 1 FT deep, • 6 each of armor stone, armor stones 3-foot by 3-foot by 3-foot, • 3 each of armor stone, armor stones 2-foot by 2-foot by 2-foot,	46.86066	-92.014653				\$5,000	FEMA June 2024			100	X		
1399133	Site 2 Amity Creek Horse Trail Bridge #8	footing undermined	• 9 CY of foundation stone, remove and replace, 21.5 FT long x 3 FT wide x 3.5 FT deep, • foundation stone grouting,	46.859736	-92.017305	X		encapsulate footing in concrete	\$15,000	FEMA June 2024			100	X		
1399133	Site 3 Amity Creek Horse Trail Bridge #9	footing undermined	• foundation stone grouting both left and right side, • 126 SF of foundation stone stucco mortaring both left and right side following the grouting, 21 FT long x 6 FT wide	46.859594	-92.017665					FEMA June 2024			100	X		