

January 2009 Flood Damages – Preliminary Repair Recommendations

River	Facility	Damage Description	Length	Risks	Proposed Repair / Recommendation	Identified on 6-Year CIP	Estimated Repair Cost	Priority and Timing	High Priority Only;	High Priority W/ Corps Assumptions	High Priority, Corps Partnership or covered by Existing CIP	Able to be contracted, designed, and permitted during summer 2009	Comments	
Cedar River	Byers Curve	Overtopping scour on levee top and backslope and face scour in several places. Missing toe rock. Natural wood debris deposited on levee top and backslope.	150	Protects several homes and sole access road. Risk of failure low.	Moderate to minor repair. Out of water maintenance	No	\$ 150,000	High	\$ 150,000	\$ 30,000	\$ 30,000	\$ 30,000		
Cedar River	Cedar River Trail 1	Severe erosion and scour downstream from 1998 repair site.	175	Bank failure threatens trail and SR-169 beyond.	Rebuild river bank. In water work.	No	\$ 262,500	High	\$ 262,500	\$ 262,500	\$ 262,500	\$ 200,000	Straightforward project - uncomplicated design	
Cedar River	Cedar River Trail 3	Scour hole within one foot of trail. Toe and bank rock damage.	185	Protects SR-169 and trail.	Moderate to minor repair. Out of water maintenance	No	\$ 185,000	High	\$ 185,000	\$ 185,000	\$ 185,000	\$ 185,000	Straightforward project - uncomplicated design	
Cedar River	Herzman	Damage to levee toe and bank. Damage old and new.	300	Primarily protects Jones Road and an undeveloped property downstream. Risk of immediate failure low. Levee is very substantial and road is setback by ~100 feet.	Evaluate need for facility rebuild/restoration at upstream end in concert with levee setback project currently on 6-yr CIP for start.	Yes, for levee setback only	\$ 450,000	High	\$ 450,000	\$ 450,000	\$ 450,000	\$ -	Combine w/ levee setback in 2010.	
Cedar River	Jan Road	Scour along top-of-bank and backslope.	60	Protects one home and sole access road, and to lesser extent, several downstream homes. Risk of failure along levee crest.	Moderate to minor repair. Out of water maintenance	Yes, for levee setback only	\$ 60,000	High	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000		
Cedar River	Lower Dorre Don	Concrete debris (likely from old bridge abutment) in river causing flows to be deflected towards neighborhood	-	Flood concerns for neighboring homes	Remove concrete debris in river deflecting flows.	No	\$ 5,000	High	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000		
Cedar River	Orchard Grove	Damage to top-of-bank and backslope.	115	Levee protects numerous single family homes, but damage not likely to cause failure in immediate future.	Moderate to minor repair. Out of water maintenance	No	\$ 115,000	High	\$ 115,000	\$ 115,000	\$ 115,000	\$ 115,000		
Cedar River	Petorak-Wadhams	Erosion and scour at upstream end of facility.	100	Revetment protects one home located close to the top-of-bank. Appears to be high energy sections – risk of further damage is moderate.	Rebuild river bank. In water work.	No	\$ 100,000	High	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000		
Cedar River	Rainbow Bend	Damage to top-of-bank and backslope.	45	Protects one home and to lesser extent, mobile home park downstream. Risk of failure low.	Moderate to minor repair. Out of water maintenance	Yes, for buyout portion only	\$ 45,000	High	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000		
Cedar River	Rhode	Damage to top-of-bank and backslope.	1000	Residential homes in path of severe flood flows.	Moderate to minor repair. Out of water maintenance	No	\$ 1,000,000	High	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 100,000	Top dressing only this summer.	
Cedar River	Belmondo	Emergency repair done during flood. Protects 300 LF. Need to complete permanent repair that meets permit requirements.	400	Protects trail, SR-169, and fiber optic cable trunk line. Emergency repair provides substantial protection. Risk of immediate failure is low.	Need to rebuild emergency repair area, stabilize damaged bank area, and reduce future risk by encouraging river to utilize Right Bank floodplain area. Consider coordination with WPA repair and identify possibility for partial levee setback.	Yes, for 2006 flood damage repairs	\$ 600,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Brodell	Toe and face scour – combination old and new.	60	Revetment protects several single family homes.	Reconstruct section of facility. Access is non-existent or problematic.	No	\$ 90,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Buck's Curve	Toe and bank damage. Need to further evaluate extent and severity.	200	Protects Jones Road.	May be able to proceed with setback levee project in lieu of repairs.	Yes, for levee setback, start in 2012	\$ 300,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Cedar River Trail 2B	Minor bank scour.	30	Protects trail and SR-169.	Rebuild river bank. In water work.	No	\$ 45,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Cedar River Trail 7	New scour and toe loss along trail upstream from 1996 repair site.	50	Protects trail and SR-169.	Reconstruct bank. Evaluate further to determine urgency.	No	\$ 75,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Lower Bain Road	Erosion and scour exposing subgrade at upstream end of facility.	20	Levee protections several homes. Risk of levee unraveling from upstream end.	Potential out-of-water bank rebuild.	No	\$ 20,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Orchard Grove	Bank erosion near upstream end.	225	Levee protects numerous single family homes, but damage not likely to cause failure in immediate future.	Moderate repair or bank rebuild. Need further investigation. Access may be a problem.	No	\$ 225,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Scott-Indian	Damage to levee toe and bank.	250	Protects several single family homes. Risk of immediate failure low. Homes are setback. Damage old and new.	Evaluate reconstruction need for facility.	No	\$ 375,000	Medium – 2010 +			\$ -	\$ -		
Cedar River	Tobacco-Datson	Loss of toe and bank rock.	25	House right at edge of river is at risk from flooding and undermining.	Access difficult to impossible.	No	\$ 37,500	Medium – 2010 +			\$ -	\$ -		
Cedar River Total								\$ 4,140,000		\$ 2,337,500	\$ 2,217,500	\$ 2,217,500	\$ 805,000	
								hi \$ 2,372,500				\$ -	\$ -	
								med \$ 1,767,500				\$ -	\$ -	
Green River	Gateway Lower/Codiga	Slump in rivebank adjacent to Green River Trail threatens trail and adjacent commercial property.	50	Moderate to high risk of trail failure.	Repair	No	\$ 150,000	High	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000		
Green River	42 nd Ave South	Slump of oversteepened river bank adjacent to water supply line.	50	High risk with impending impact on infrastructure (high pressure water supply line).	Design 90% complete; emergency repair to start soon upon securing permits.	No	\$ 175,000	High	\$ 175,000	\$ 175,000	\$ 175,000	\$ 175,000		
Green River	Briscoe Meander, Briscoe, Briscoe School	Slumping and erosion in at least four locations; Slumping expressed in levee toe, face and crest (trail pavement) in four locations.	1700	Moderate-High. Levee protects significant commercial and industrial areas in lower Green River valley.	Pursue levee reconstruction and setback identified in 2006 Flood Plan.	Yes	\$ 2,550,000	High	\$ 2,550,000	\$ 610,000	\$ -	\$ -	Pursue existing CIP. In discussions with Corps about PL 84-99 repair, see new projects spreadsheet for potential costs.	
Green River	Desimone	Slumping in five locations	1000	Moderate-High. Levee protects significant commercial and industrial areas in lower Green River valley.	Pursue levee reconstruction and setback identified in 2006 Flood Plan.	Yes	\$ 1,500,000	High	\$ 1,500,000	\$ 375,000	\$ -	\$ -	Pursue existing CIP. In discussions with Corps about PL 84-99 repair, see new projects spreadsheet for potential costs.	

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Green River	Horseshoe Bend	Lower slope erosion and undercutting of toe, lower and upper slope slumping, deep-seated cracks developing in paved trail section.	400	High with impending impact on infrastructure.	Requested PL84-99 assistance from Corps of Engineers; additional \$4 million requested in 2008; project planned for construction by Corps of Engineers in .	No	\$ 600,000	High	\$ 600,000	\$ 60,000	\$ 60,000	\$ 60,000	Corps 100% repair. 10% for design review, real estate certification.
Green River	Ratolo	Damage in two locations. Slump on face with cracks in trail and sinkhole in back of levee.	170	Moderate-High. Levee protects significant commercial and industrial areas in lower Green River valley.	Submit to Corps for PL 84-99 repair.	No	\$ 255,000	High	\$ 255,000	\$ 255,000	\$ 255,000	\$ 25,000	Corps 100% repair. 10% for design review, real estate certification.
Green River	Somes-Dolan, Russell Road Upper	Slumping in three areas, severe in places.	920	Moderate to high risk of levee failure if damage is not repaired. Levee protects significant residential and commercial areas in Kent and access to S. 228th St.	Pursue levee setback.	No	\$ 1,380,000	High	\$ 1,380,000	\$ 1,380,000	\$ 1,380,000	\$ -	Exceeds labor limit, bid packages and procurement process needed for construction. Defer to 2010.
Green River	Stoneway Lower	Slumping in three locations and active slump impacting trail. Asphalt currently offset 0.45 feet. City of Seattle sewer landfill sewer line ~10 feet landward of slump.	600	Significant damage to trail and risk to sewer line.	Possible emergency repair.	No	\$ 900,000	High	\$ 900,000	\$ 900,000	\$ 900,000	\$ 150,000	Repair to one location where critical infrastructure at risk.
Green River	216 th Street revetment, Frager Road, Frager Road Lower	Slumping in three locations threaten Frager Road. This area has been identified as a levee setback area and land has been set aside for this purpose over much of the setback length.	500	Moderate to high risk to local access road, trail, residential and agricultural areas.	Pursue levee setback project from S 212 th St to RM 18.85.	No	\$ 750,000	Medium – 2010 +			\$ -	\$ -	
Green River	Boeing Setback Levee	Slumping in levee face.	1100	Moderate risk. Levee protects significant commercial and industrial areas in lower Green River valley.	Complete planned levee setback project; levee setback already; construction of new toe and midslope bench needed.	No	\$ 1,650,000	Medium – 2010 +			\$ -	\$ -	
Green River	Gunter	Scour and slumping damage in 4 locations.	800	Moderate-High. Levee protects significant commercial and industrial areas. Levee within Tukwila 205 system and inside cutoff levee.	Consider levee setback project for entire facility. Inspect with Corps for possible PL 84-99.	No	\$ 1,200,000	Medium – 2010 +			\$ -	\$ -	
Green River	Holiday Kennel, Russell Road Lower, Unnamed facility at RM 18.2	Slumping in four locations along Russell Road.	970	Moderate to high risk (depending on location) to Russell Road and commercial and residential areas.	Consider pursuing proposed levee setback.	No	\$ 1,455,000	Medium – 2010 +			\$ -	\$ -	
Green River	O'Connell to Omlid (Frager Road fm 200th to 212th)	Slump in two locations expressed on riverbank and road surface.	140	Moderate to high risk to local access risk and residential and agricultural areas and proposed Tukwila South development area.	Monitor or add to CIP	No	\$ 210,000	Medium – 2010 +			\$ -	\$ -	
Green River Total								\$ 12,775,000		\$ 7,510,000	\$ 3,905,000	\$ 2,920,000	\$ 560,000
								\$ 7,510,000				\$ -	\$ -
								\$ 5,265,000				\$ -	\$ -
MF Snoqualmie	Mason Thorson Ells	350 LF scour along toe and lower bank at downstream end of levee, contiguous with another 750 LF scour along unprotected banks downstream. 450 LF scour along toe and lower bank near midpoint of levee. Two sinkholes near upstream end of levee.	1550	Significant damage. Potential threat to public or private property if condition worsens.	Timely repair recommended; pursue PL 84-99 funding, expansion of 2008 project.	Yes, in 2008 for Nov. 2006 flood damage repairs (Corps). Also larger CIP in 6-yr	\$ 1,000,000	High – (Corps)	\$ 1,000,000	\$ 200,000	\$ 100,000	\$ 100,000	
MF Snoqualmie	Mason Thorson Extension	450 LF scour along toe and lower bank at downstream end of levee. Continuing erosion that could flank upstream end of levee, even after completion of emergency project in January .	450	Significant damage. Potential threat to public or private property if condition worsens.	Emergency repair completed; additional timely repair recommended. Pursue PL 84-99 funding, expansion of 2008 project.	Yes, in 2008 for Nov. 2006 flood damage repairs (Corps). Also larger CIP in 6-yr	\$ 450,000	High – (Corps)	\$ 450,000	\$ 90,000	\$ 90,000	\$ 90,000	
MF Snoqualmie Total								\$ 1,450,000	\$ -	\$ 1,450,000	\$ 290,000	\$ 190,000	\$ 190,000
NF Snoqualmie	Vallcuda	75 LF of access road has washed out at culvert crossing (culvert is buried in sediment and flowing but not visible). Widespread evidence of overtopping but not widespread damage. Back scour along 100 LF near upstream end of levee. Toe scour along 30 LF near upstream end of levee. Evidence of overtopping on several residential properties upstream of levee.	200	Significant damage. Potential threat to public or private property if condition worsens.	Timely repair recommended.	No	\$ 300,000	High	\$ 300,000	\$ 300,000	\$ 300,000	\$ 50,000	some repair in 2009 ; remainder in 2010
NF Snoqualmie	Shake Mill Left	315 LF of erosion damage that includes complete loss of riprap armor, exposing levee subgrade in high energy environment. Landowner wants damage repaired but is not willing to grant River Protection Easement (no recorded easement now exists).	315	Significant damage. Potential threat to public or private property if condition worsens.	Timely repair recommended; dependent on landowner easement willingness.	No	\$ 400,000	High – 2010			\$ -	\$ -	
NF Snoqualmie Total								\$ 700,000		\$ 300,000	\$ 300,000	\$ 300,000	\$ 50,000
Raging River	Bridge to Bridge L	Toe scour approx 200' long, up to 5' high	200	Minor damages, but facility protects residential areas in Fall City area.	Emergency or timely repair (CIP design underway; will address new damages)	Yes, in 2008 for Nov. 2006 flood damage repairs	\$ 100,000	High	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	
Raging River	Bridge to Bridge R	Toe scour below road shoulder. (Large natural boulder at toe) Consider repair due to proximity to road.	30	Minor damages, overall length may be longer than originally observed. Facility protects residential areas in Fall City area.	Repair; incorporate into Bridge to Bridge Left CIP project.	No	\$ 50,000	High	\$ 50,000	\$ 10,000	\$ 10,000	\$ 10,000	

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Raging River	Bridge to Mouth R	Minor scour of levee top.	250	Minor damages, overall length may be longer than originally observed. Facility protects residential areas in Fall City area.	Requested PL84-99 assistance from Corps of Engineers	Yes, in 2008 for Nov. 2006 flood damage repairs (Corps)	\$ 100,000	High	\$ 100,000	\$ 30,000	\$ 30,000	\$ -	Implement in 2009 under existing project, no new funds needed.
Raging River	Preston Fall-City Lowest	Scour of toe rock, slumping of toe	120	Significant damage. Potential threat to Preston-Fall City Road and private property if condition worsens.	Emergency repair (completed, may require some modification)	Yes, in 2008 for Nov. 2006 flood damage repairs	\$ 200,000	High	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	
Raging River	Preston Fall-City Lower	Erosion/landsliding immediately upstream of facility and affecting upstream end of slope repair. Landsliding ~75' wide extends to within 30 (horizontally) feet of road. Failure due in part to roadway drainage due to blockage of roadside culvert installed 2007.	75	Significant damage. Potential threat to Preston-Fall City Road and private property if condition worsens.	Timely repair? (damages partially outside of facility footprint; also pending lawsuit may impact feasibility)	No	\$ 250,000	High – 2010			\$ -	\$ -	
Raging River	Preston-Fall City Upper	Erosion/landsliding immediately downstream of facility. Erosion/Landsliding is ~250' long and at its closest point extends to within 30 (horizontally) feet of road.	250	Significant damage. Potential threat to Preston-Fall City Road and private property if condition worsens.	Timely repair? (damages outside of facility footprint; also pending lawsuit may impact feasibility)	No	\$ 400,000	High – 2010 (may be by KC Rds)			\$ -	\$ -	
Raging River	Hirsh	Loss of rock between spurs. Scour between spurs.	30	Minor damage to revetment; protects residential areas.	Monitor / possible repair; further assessment required. Pending buyout may preclude need for repair.	No	\$ 30,000	Medium – 2010			\$ -	\$ -	
Raging River Total							\$ 1,130,000		\$ 450,000	\$ 340,000	\$ 340,000	\$ 310,000	
SF Skykomish River	McKnight	When this was repaired rock was placed low on bank and willows were planted higher on bank. Willows look healthy but below them you can see than bank erosion is removing soil from bank, exposing willow roots, and could lead to loss of willow plants and faster erosion.	60	Minor damage to revetment; protects residential areas.	Monitor / possible repair; further assessment required.	No	\$ 60,000	High	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	
SF Skykomish River (Miller River)	Miller River Curve	Log jam at corner appears intact and accumulating debris. An open channel at the upstream end of the log jam leads directly to the Old Cascade Highway. There is obvious evidence of scour on the north side of this road. This situation continues to appear tenuous.	NA	Significant damage. Potential threat to public roadway if condition worsens.	Timely repair recommended. Likely helicopter placement of LWD.	Yes	\$ 200,000	High	\$ 200,000	\$ 200,000	\$ 80,000	\$ 80,000	
SF Skykomish River	NE 196 th and 635th NE	Rip Rap below road intersection looks fine. Revetment contiguous and immediately downstream has large scour hole below small cabin (63425 NE 196 th). Hole would require volume 10' wide, 8' long, and 2 feet deep of rock to fill.	15	Significant damage. Potential threat to private property if condition worsens.	Timely repair needed; however private problem so policy decision required.	No	\$ 50,000	High	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	
SF Skykomish River Total							\$ 310,000	\$ -	\$ 310,000	\$ 310,000	\$ 190,000	\$ 190,000	
SF Snoqualmie	Si View Park	Oversteepened toe just above SR 202 bridge.		Significant threat to public or private property if condition worsens.	Timely repair needed. Early action of larger S Fk Levee Improvements project.	Yes	\$ 500,000	High	\$ 500,000	\$ 500,000	\$ -	\$ -	
SF Snoqualmie	Reif Road	100 LF scour of levee face just upstream of Shamrock Park duckbill outlet. 100 LF toe scour near SE corner of Shamrock Park subdivision. 200 LF scour near RM 3.6, 100 LF scour near RM 4.1. Culvert missing flap gate near RM 4.5.	400	Significant threat to public or private property if condition worsens.	Timely repair needed. Early action of larger S Fk Levee Improvements project.	Yes	\$ 500,000	High	\$ 500,000	\$ 500,000	\$ 500,000	\$ -	Exceeds labor limit, bid packages and procurement process needed for construction.
SF Snoqualmie	Allen	Upstream 120 LF of recent repair has been scoured, with loss of toe rock extending into first rock spur.	120	Significant threat to public or private property if condition worsens.	Timely repair to 2008 project recommended.	Yes, in 2008 for Nov. 2006 flood damage repairs	\$ 60,000	High	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	
SF Snoqualmie	Circle River Ranch	Avulsion roughly 1,300 feet upstream of Circle River revetment has allowed river to occupy an established side channel without revetment or other obvious structure (natural or man-made) that would resist erosion. Several homes exist along this side channel.	NA	Significant threat to public or private property if condition worsens.	Emergency or timely action needed; however problem is outside of footprint of County-maintained facility. Requires further assessment.	No	TBD	High – 2010			\$ -	\$ -	
SF Snoqualmie	Multiple sites	Damages including toe and bank erosion, scour pockets, etc. along portions of Bendigo Lower R, Bendigo Upper L, Bendigo Upper R, Si View Park, Holstein Extension, Riverbend, and Stanley Carlin.	NA	Significant risk to multiple public and private properties.	Multiple repairs needed; address within scope of existing CIP project -- South Fork Snoqualmie River Levee Improvements	Yes	TBD	High – 2010			\$ -	\$ -	
SF Snoqualmie	Edgewick Road R	Only a small remnant of this revetment remains after apparent long-term degradation. Visible evidence of recent erosion is not dramatic, but recent slope failure above downstream end of revetment may threaten home at top of bluff.	NA	Significant threat to private property if condition worsens.	Monitor and further assessment, possible repair.	No	TBD	Medium – 2010			\$ -	\$ -	
SF Snoqualmie Total							\$ 1,060,000	\$ -	\$ 1,060,000	\$ 1,060,000	\$ 560,000	\$ 60,000	

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Snoqualmie	Sinnera Qualle Upper	720 LF slump in adjoining facilities. Includes both upstream 340 LF of Sinnera Qualle Upper revetment and adjoining 380 LF of Snoqualmie Valley Trail. Evidence of new motion where prior floods had already caused instability, with partial remedial efforts in prior years not resolving overall problem.	720	Significant threat to Snoqualmie Valley Trail if condition worsens. SR 203 immediately behind trail.	Timely repair needed.	Yes	\$ 900,000	High	\$ 900,000	\$ 900,000	\$ -	\$ -		
Snoqualmie	McElhoo-Pearson	Scour damage to levee top and back-slope. Debris on levee.	1100	Significant damage. Potential threat to public or private property if condition worsens.	Requested PL84-99 assistance from Corps of Engineers	Yes, in 2008 for Nov. 2006 flood damage repairs (Corps)	\$ 250,000	High (Corps)	\$ 250,000	\$ 50,000	\$ 50,000	\$ 50,000		
Snoqualmie	Schiessel-Phiffer	600 LF of revetment scoured away. Scour of adjoining overbank has opened low-elevation path for flow to leave river more frequently. Could exacerbate flood problems in Garden Tracts neighborhood.	600	Significant damage. Potential threat to public or private property if condition worsens.	Timely repair needed.	No	\$ 600,000	High	\$ 600,000	\$ 600,000	\$ 600,000	\$ -	Exceeds labor limit, bid packages and procurement process needed for construction.	
Snoqualmie	Spring Glen	Erosion of tall banks along large-lot residential properties between Plum Upper and Plum Lower revetments. Includes damage to private rockery (already repaired) and to private revetment (not repaired).	NA	Significant damage. Potential threat to public or private property if condition worsens.	Emergency or timely repair required, however might be considered a private issue.	No	TBD	High	TBD		\$ -	\$ -		
Snoqualmie	13.5 Revetment (aka Tolt River Pipeline Protection)	680 LF slump in revetment, where prior floods had already exposed subgrade. Little evidence of armor remains.	TBD	Significant damage. Potential threat to public or private property if condition worsens. Largest risk is to SPU Tolt River water supply pipeline.	Timely repair recommended to forestall problem before it progresses towards pipeline.	Yes	\$ 1,000,000	High – 2010 +			\$ -	\$ -	Confirm extent of risk to water line and timeline for repairs with City of Seattle.	
Snoqualmie	Aldair Levee	Erosion of back slope. Urgency of repair may be greatly reduced by ongoing effort to relocate tenants now living behind levee.	TBD	Significant damage. Potential threat to public or private property if condition worsens.	Further evaluation recommended.	Yes, for acquisition of at risk residential structures	\$ 100,000	Medium – 2010 +			\$ -	\$ -		
Snoqualmie	Below Pleasant Hill	300 LF toe scour along existing revetment. Tall bank. Sonar shows 12 ft depth plus 15 feet of bank is visible above water.	300	Significant damage. Potential threat to public or private property if condition worsens.	Timely repair needed.	No	\$ 450,000	Medium – 2010 +			\$ -	\$ -		
Snoqualmie Total														
							\$ 3,300,000	\$ -	\$ 1,750,000	\$ 1,550,000	\$ 650,000	\$ 50,000		
Tolt River	Tolt River Levee R	Massive right bank log jam covers revetment	NA	Minor damage, possible public safety issue, impedes restoration project	Remove logjam; implementation necessary for levee setback project to be constructed in	No	\$ 125,000	High	\$ 125,000	\$ 125,000	\$ 125,000	\$ 125,000		
Tolt River	Tolt River Rd. Protection	Severe erosion at upstream end. No immediate threat to road. This area is heavily used by the public and there is a risk of the a member of the public falling off steep, eroded face. It is unclear how much (if any) of this erosion occurred this year, and how much in previous flood seasons. It's now 8' feet from the steel well (?) casing to the closest point erosion.	40	Significant damage. Potential threat to public (Tolt River Road) or private property if condition worsens.	Timely repair (CIP design underway; will address new damages)	Yes	\$ 500,000	High	\$ 500,000	\$ 500,000	\$ -	\$ -		
Tolt River	Frew	Erosion of soil above toe rock. ~50 ft. long. Toe erosion. 50' long. Toe oversteepened. Downstream end of spanning channel culvert significantly plugged with debris. Should be cleaned.	50	Significant damage. Potential threat to public or private property if condition worsens. Levee protects flooding of residential and commercial areas in and around City of Carnation.	Monitor / possible repair; further assessment required.	No	\$ 75,000	Medium – 2010			\$ -	\$ -		
Tolt River	Frew Upper	Toe scour ~8' high, ~40' long. Toe scour ~100' long, ~3' high above extant river stage. Across from Remlinger/Girl Scout Camp property line	140	Minor damages. Levee affords partial protection to residential and commercial areas in and around City of Carnation.	Monitor / possible repair; further assessment required.	No	\$ 210,000	Medium – 2010			\$ -	\$ -		
Tolt River Total														
							\$ 910,000		\$ 625,000	\$ 625,000	\$ 125,000	\$ 125,000		
							hi \$ 7,995,000					\$ -		
							med \$ 1,265,000					\$ -		
Grand Total			18,805	linear feet			\$ 25,775,000		\$ 15,792,500	\$ 10,597,500	\$ 7,492,500	\$ 2,340,000		