

Valuation of the Calculated Credits



- **Protocols in Design vs Monitoring**
 - Protocol 1 requires 50% credit reduction - assumed failures? No credit reductions until more than 50% of banks are eroding?
 - Protocol 3 – many urban channels cannot get credit through this process - Is visual monitoring specific to protocol valid?
 - ✦ Valid to show floodplain connection still occurs at 1 or 2 yr.
 - ✦ Promote this as a key design element.
 - ✦ Remodeling not justified
 - ✦ Wetland Delineation

The Middle Ground



<i>Showing Minor Compromise</i>	5 to 10%	Re-inspect reach in next three years	None, Credit renewed until next inspection
What does 9-15% look like?			
<i>Showing Major Compromise</i>	11 to 30%	Conduct immediate forensic investigation to ID cause(s)	Re-do BANCs or floodplain analysis and reduce credit accordingly

- Take a few bank height measurements
- Bed is ok but banks are unvegetated
- Debris jams but no avulsions
- Just a few locations of erosion or throughout

Guidance is Needed



- **Measuring BANCS**
 - Subjective
 - Slow
- **Measuring bank height**
 - Where/how often should it be measured
 - Constructed width related to height and design discharge
- **Should debris jams be removed?**
 - i.e. recruitment of LWD



Failure Is Not An Option



<i>Showing Major Compromise</i>	11 to 30%	Conduct immediate forensic investigation to ID cause(s)	Re-do BANCs or floodplain analysis and reduce credit accordingly
“Admitting” and defining failure will be difficult			
<i>Project Failure</i>	31% or more	Drop credit, decide whether to reconstruct or abandon the project	

- Can BANCs define failure?
- What is failure: bank, bed, both?
- Isolated or throughout?

Failed Sites - Repairing Damaged Areas



- **What caused the deterioration**
 - Two 100 year events within 2 years?
 - Incised channel development over many years
 - Small bench or floodplain width insufficient
 - Unlikely determined from as-built review
- **When is disturbance of repair worth stabilizing result?**
 - Infrastructure or private property at risk
 - Major access over maintained utility easement
 - Designer/Construction error that will not evolve quickly
 - Low RBP

Site Evolution



- Year 5 site looks a lot different from as-built
- Typically know the sites with issues



Project Owners



- **Want to know what is happening**
 - Additional cross section surveys
 - Additional vegetation survey – 1 year replacements
- **Want/need cost effective monitoring**
 - EXAMPLE – Howard County: KCI has 11 visual sites in 2018
 - Typical site length 2,000 LF
 - 3-4 sites per day
 - Likely 20+ sites in 2018
 - Additional 5/year

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Simplicity



- Focus on Keeping it Simple
 - Qualitatively assess bank erosion
 - Qualitatively assess vegetation
 - ✦ Cost effective way to get many sites done in a day
 - Gut check – does it need repair
 - ✦ Who is qualified to do this?
 - ✦ Familiarity vs Experience



Gut Check – Certification?



Status	% of Reach Failing	Gut Check	Inspections	Re-testing ?
<i>Functioning Well -</i>	less than 5%	It's so nice to be out of the office and in nature today	Re-inspect in 5 years	None Needed Credit Renewed for 5 Years
<i>Showing Minor Compromise</i>	5 to 10%	Hmm that's a surprise we'll need to see how it evolves	Re-inspect reach in next three years	None, Credit renewed until next inspection
<i>Showing Major Compromise</i>	11 to 30%	Good thing we came out today, this needs help before it gets worse	Conduct immediate forensic investigation to ID cause(s)	Re-do BANCs or floodplain analysis and reduce credit accordingly
<i>Project Failure</i>	31% or more	This is nearly as bad as before the restoration	Drop credit, decide whether to reconstruct or abandon the project	