Floodplain and Tree Buffer

Discussion

Presented by:

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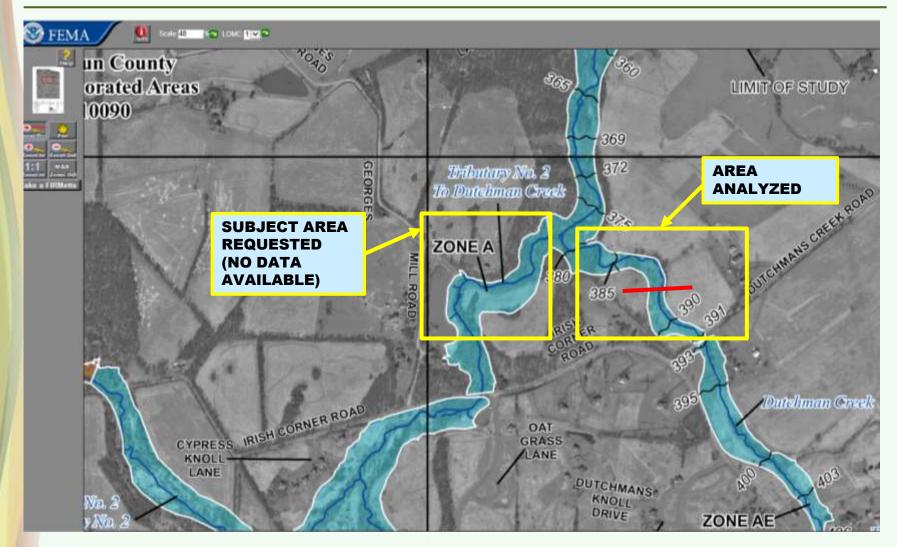
Mike Marsala

P.E., C.F.M.



October 6, 2017

Floodplains in Rural Loudoun County





Dutchman Creek Example

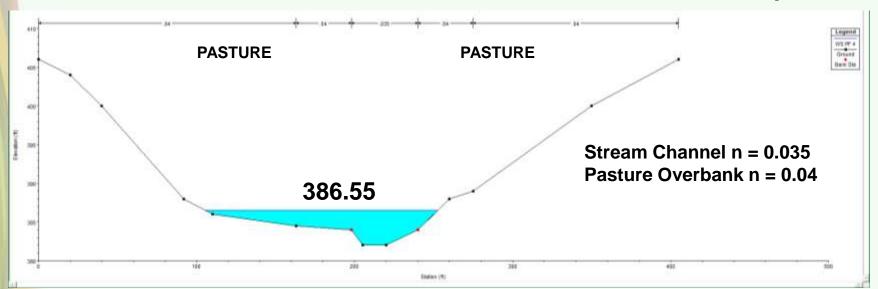


- Cross-section cut from
 Loudoun County 2-ft contour
 interval GIS topography
 (not field run survey)
- 100-yr flow = **2,280 CFS**



Dutchman Creek Example

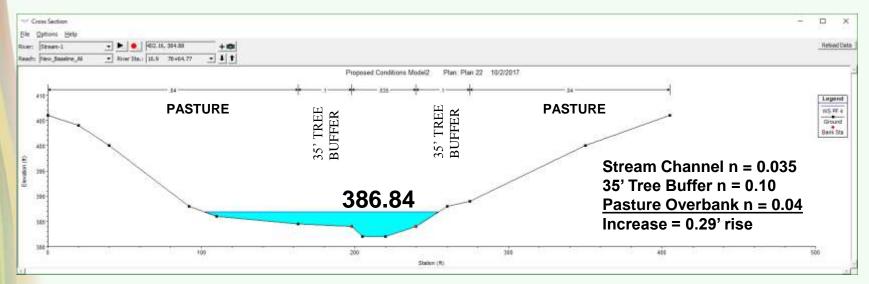
Assume all pasture



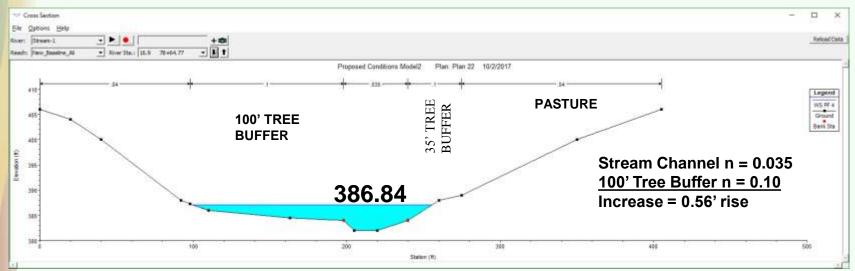


Dutchman Creek Example

35' Tree Buffer Addition

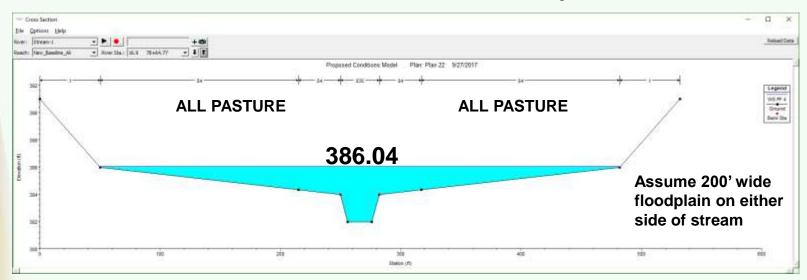


100' Tree Buffer Addition

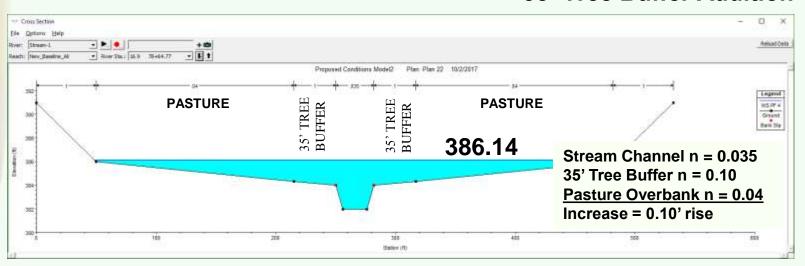


Hypothetical Example

Wider Floodplain, Same Location

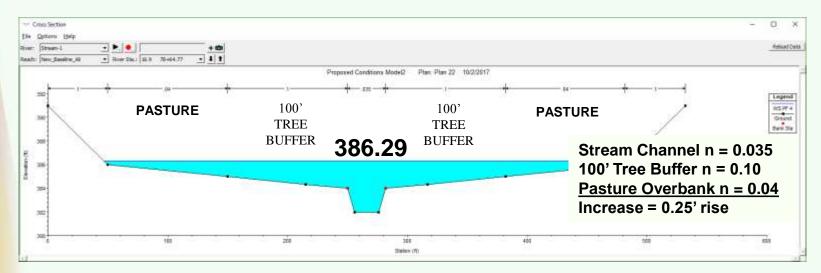


35' Tree Buffer Addition

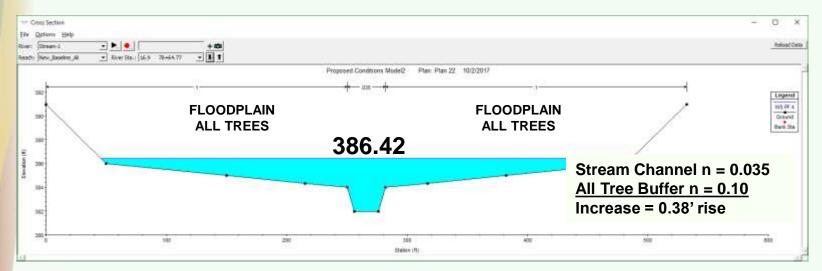


Hypothetical Example

100' Tree Buffer Addition



All Tree Buffer Addition



Difficulties with Flood Studies in Rural Areas

Difficulties:

- Rainfall intensities have changed
- Old models use "odd" Manning's "N"
- Most often in Zone A (approximate) Flood Zones...



Difficulties with Flood Studies in Rural Areas

 When Floodplain is a Zone AE, flood data is often old and models are not available.

51% of FEMA mapped streams in Loudoun County still utilize

models from 1981 or earlier.

Flooding Source	500007	y Lends Upsteam Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations		- 1527 - 1527 - 1527	Delivery)	Marie Marie Appendiction	86.	100	# 1.0	
Seaverdom Creek	North Fork Catodin Creek and Catodin Creek	250 feet downstream of Armort Road	TR-20	W5P2	May 1976	Æ	PAIA	Tarries Tarries Tarries	r mant r mant	(Address) (Address) (Address) (Address) (Address)	2007 2007 2007 2007 2007 2007	#200 #200 #200		200 mm	
leaverdam tun	Confluence with Broad Run	100 feet upstream of Demott Drive	Regression Equation for Loudoun County	HECRAS 41	11/29/2013	AE	inone	20000 20000 20000 20000	Personal Personal Personal	in the second	*#	-	***		
ig Spring ranch	0.5 mile upstream of James Monroe Highway	1.1 miss upstream of James Morroe Highway	TR-20	E-431	April 1981	AE	PACE	750		TOTAL STREET	l march	LONG.	int report	750	1
road Run	Confluence with Potomac River	Confluence of South Fork Broad Run and North Fork Broad Run	Regression Equation for Loudoun County	HEC-RAS 4.1	11/29/2013	Æ	none	14	T MANUAL PROPERTY.	THE STATE OF THE S		100	$g_{\mathbb{R}^{(d)}}$	P 10	j
labin Branch io, 1	Confluence with Broad Run	Old Ox Road	Regression Equation for Loudoun County	HEC-RAS 4.1	11/29/2013	AE	none	10 mm	2 200		Parent and land		- mr		1
labin Branch ip. 2	Confluence with Broad Run	200 feet upstream of West Church Road	Regression Equation for Loudoun County	HEC RAS	11/29/2013	Æ	none	-	A SA	10000000	Spinor V	101.04	respect	# 100 % 100	j
Catoctin Creak	500 feet upstream of confluence with Polomac River	South Fork Catootin Creek and North Fork Catootin Creek	TR-20	WSP2	May 1976	Æ	140	50	r pari	MACH	State of the last	11	-		
Cattail Branch	Confluence with Goose Creek	2,200 upstream of U.S. Highway 15	Regression Equation for Loudoun County	HEC-RAS 4.1	11/29/2013	AE	none	ens Ens	1 20	AND THE LABOR TO SERVICE AND THE LABOR TO SERV	10.00			10 244 % 10	
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Thank You For Your Attention





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