AOP Design Recommendations
VT116 Culvert AOP Assessment Study
Hinesburg, Vermont
May 4, 2012

LocalID	VTrans Milepost (miles)	Drainage Area (square miles)	Existing Structure Type	Channel Bankfull Width (ft)	VTrans Plan of Action Due to Condition*	Upgrade for Flow Capacity	Upgrade for AOP Improvement	Upgrade for Full AOP and Geomorphic Compatibility	Design Recommendation	AOP Priority #
1	6.9	0.0	24" RCP	*3*	Clean	36" CPP	*AOP not applicable. Limited habitat potential.*		Clean sediment out of ends.	19
1b	6.7	0.2	4.3' x 3.2' Box	*7*	No Change	No	48" CMP	7.3' x 5.3' Pipe Arch	Replace with 48" CMP. Embed 0.5'. Lower elevation 4 feet to eliminate drop	7
1c	6.5	0.1	24" CMP	*5*	Field Visit	36" CPP	*AOP not applicable. Limited habitat potential.*		*N/A*	14
2	6.4	0.0	30" CMP	*3*	Clean	No	*AOP not applicable. Limited habitat potential.*		Remove sediment from pipe to restore capacity.	17
3	6.2	0.9	42" CMP	10	Field Visit	66" CMP	72" CMP	10.7' x 6.9' Pipe Arch	Lower inlet 1.25' to reduce slope and lower outet 1.5' to eliminate drop. Increase slope by 0.5% to 1.5%. Modify farm ford downstream to increase elevation by 0.5' to increase backwater. Embed 20%	2
4	5.5	0.3	4' x 2.5' Box	10	Field Visit	54" CMP	54" CMP	10.7' x 6.9' Pipe Arch	Install as existing.	10
5	5.4	0.0	18" RCP	*3*	Field Visit	30" CPP	*AOP not applicable. Limited habitat potential.*		*N/A*	18
6	5.1	7.4	7' x 4' Box	10	No Change	14' x 7' Box	14' x 7' Box	14' x 8' Box	Lower inlet by 1.5' to reduce slope. Lower outlet by 1.0' to increase backwater depth. Decrease slope by 0.9% to 2%. Embed 20%.	4
7	4.8	7.2	Bridge	21	*N/A*	*N/A*	*N/A*	*N/A*	*N/A*	22
8	4.7	0.1	36" CMP	*5*	No Change	60" CMP	*AOP not applicable. Limited habitat potential.*		Increase pipe size from 60" to 66". Embed 1'. Lower inlet 2.3', lower outlet 2.6', and increase slope by 0.3% to 1.5% to decrease velocity and increase depth. Increased tailwater elevation 1.5'.	12
9	3.9	0.1	36" RCP	*5*	Field Visit	6.4' x 4.3' Pipe Arch	*AOP not applicable. Limited habitat potential.*		Limited fill depth, required pipe arch. 72" pipe satisfied conveyance criteria	13
10	3.7	0.3	36" RCP	*7*	Field Visit	54" CMP	54" CMP	7.3' x 5.3' Pipe Arch	Embed pipe 1 foot. Lower elevation by 1.0'. Decrease slope by 0.8% to 1.5%.	8
10b	3.7	0.0	18" RCP	*1*	No Change	No	*AOP not applicable. Limited habitat potential.*		*N/A*	20
11	3.5	0.1	18" RCP	*4*	No Change	30" CPP	*AOP not applicable. Limited habitat potential.*		*N/A*	16
12	3.3	0.3	60" CMP	10	No Change	No	No	10.7' x 6.9' Pipe Arch	Embed 1 foot. Lower elevation by 0.5'.	9
13	3.2	3.2	Two 10' x 6.5' Pipe Arches	*22*	No Change	No	*Beyond Scope of Project.*	*N/A*	Replace with single span structure at least 100% bankfull width. Likely a bridge structure.	6
14	2.7	0.7	48" RCP	*11*	Field Visit	66" CMP	72" CMP	11.4' x 7.3' Pipe Arch	Increase pipe size from 66" to 72". Embed 1'. Lower inlet elevation by 0.6', lower outlet by 1', increase slope by 0.6% to 3.6% to eliminate drop and decrease length of depth barrier. Downstream culvert needs to be addressed also.	3
15	1.5	0.2	36" RCP	*6*	No Change	42" CMP	*AOP not applicable. Limited habitat potential.*		Increase pipe size by 1' to 54". Lowered inlet by 2.6' and outlet by 2.4'. Decrease slope from 7% to 5.8%. Increase slope of channel upstream by 2%. Increase tailwater downstream by 1'.	11
16	1.3	0.5	35" CMP	*10*	No Change	60" CMP	60" CMP	10.3' x 6.8' Pipe Arch	Lower inlet by 3.71' and outlet by 2' to eliminate drop. Modify downstream riffle to increase backwater by 1.0'. Decrease slope by 1.8% to 1.5%. Embed 20%.	1
17	1.1	0.1	18" RCP	*4*	Repair	36" CMP	*AOP not applicable. Limited habitat potential.*		Fix Headwall.	15
18	0.7	7.5	Bridge	34	*N/A*		*N/A*	*N/A*	*N/A*	21
19	0.2	0.8	42" RCP	13	Field Visit	72" CMP	72" CMP	13' x 7' Box	Install as existing.	5

NOTES:
RCP = radial concrete pipe. CMP = corrugated metal pipe. CPP = corrugated plastic pipe
Bold box indicates recommended structure type and size. See design recommendations for embeddedness, slope, inlet/outlet, and alignme
* Plan of Action based on VTrans initial assessment of MMI field data and recommendation