

AOP Design Recommendations
VT116 Culvert AOP Assessment Study
Starksboro, 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 #
Action Items During VTrans Paving Project (Listed by Priority.)										
3	6.02	1.1	42" RCP	11	Field Visit	72" CMP	78" CMP	11.4' x 7.3' Pipe Arch	Increase pipe size to 78". Embed 1'. Lower pipe elevation 1'.	3
2	6.16	0.3	48" RCP	7	Field Visit	No	54" CMP	7.3' x 5.3' Pipe Arch	Replace with 54" CMP. Embed 0.5'. Lower pipe elevation 1'. Decrease culvert slope from 2.1% to 1%. 20% embedded. Reduce slope to 0.6%. Lower inlet 2.3' and lower outlet 1.8'. Increase tailwater downstream by 1'.	7
11	1.37	0.7	42" RCP	<i>11</i>	Field Visit	54" CMP	No	11.4' x 7.3' Pipe Arch		6
Future AOP Recommendations (Listed by Priority.)										
10	2.22	5.4	7' x 6' Box	25	No Change	10' x 8' Box	18' x 10' Box	25.2' x 8.4' Low-Profile Pipe Arch	20% embedded. Reduce slope to 0.6%. Lower inlet 2.3' and lower outlet 1.8'. (High Knob Brook culvert replacement strongly desired.)	1
5	5.60	1.2	48" RCP	9	No Change	8' x 4' Box	No	9.3' x 6.3' Pipe Arch	Reduce slope to 1%. Lower inlet elevation by 1.6'. Embed 20%.	2
4	5.78	0.3	42" CMP	8	No Change	No	48" CMP	8.6' x 5.9' Pipe Arch	Replace with 48" CMP. Embed 0.5'. Lower pipe 1.5'. Decrease slope 1.2% to 2%. Lower inlet by 2.5'. Increase tailwater elevation by 1'.	4
8	4.36	0.1	48" RCP	4	No Change	No	No	No.	Increase tailwater by 1' to remove depth barrier. Use log weir or other small method.	5
13	1.02	0.3	78" Round Multi-Plate	8	No Change	No	No	12.5' x 8' Pipe Arch	Embed 1.3'. Lower elevation by 2'.	8
AOP Not Applicable. Limited Habitat Potential.										
1	6.65	0.0	24" RCP	3	Repair	42" CPP	<i>AOP not applicable. Limited habitat potential.</i>		Repair End.	12
6	5.36	0.1	42" CMP	5	No Change	No	<i>AOP not applicable. Limited habitat potential.</i>		N/A	10
7	5.19	0.0	30" RCP	2	No Change	No	<i>AOP not applicable. Limited habitat potential.</i>		N/A	9
7a	5.03	0.0	30" RCP	2	Repair	No	<i>AOP not applicable. Limited habitat potential.</i>		Fix Headwall.	14
9	2.93	0.3	48" RCP	8	No Change	No	<i>AOP not applicable. Limited habitat potential.</i>		N/A	11
12	1.23	0.0	18" CMP	2	No Change	24" CPP	<i>AOP not applicable. Limited habitat potential.</i>		N/A	13
Bridge. No AOP problems.										
14	0.90	9.0	Bridge	32	N/A	N/A	<i>Bridge not applicable.</i>		N/A	15

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 alignment.
* Italicized channel bankfull width indicates value taken from VT hydraulic geometry equation.
** Plan of Action based on VTrans initial assessment of MMI field data and recommendations.