



Vermont Local Roads
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To: Vermont State and Municipal
Transportation Workforce

From: David Antone
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Subject: HDPE Plastic Road Culverts

A very large contingent of Vermont Highway Departments, Town Administrators, and Selectboard members has continuously raised questions about the integrity of the HDPE plastic culverts. While my own experience with these culverts has been good, my interaction with Vermont Towns is leading me to believe that good experiences may be in the minority. If your town is having problems with defects occurring in these culverts, you are certainly not alone. I have begun actively surveying this issue as I travel through the state and I am finding that some problem culverts exist in most towns visited. The problem seems very widespread and it occurs in culverts that are installed by highway crews and contractors alike. It is not a wonder that some installers believe that they should switch back to steel culverts.

While I agree that this problem exists and is not isolated to a few towns, I do not subscribe to the notion that the culverts are causing the issue. While I was out photographing culverts and found many deformed plastic culverts that were installed recently, I also found locations where the plastic culverts had no defects after spending up to seven years in the ground.

Steel culverts do have more built in structural strength and can be installed with less diligence than HDPE culverts. They don't show defects as easily but many of the ones I looked at had joint defects that are hard to spot. When you apply the same installation procedures to plastic culverts, defects are much easier to spot and occur through the length of the culvert wall rather than just in the joint. While steel culverts give the appearance of surviving "under compaction" or unsuitable bedding material, plastic culverts show immediate physical changes that speak to the need to improve installation procedure.

To achieve cost savings in the purchase price and longevity, most towns have embraced the use of HDPE plastic culverts. I think that, from a cost standpoint, this is often the best value for towns and should continue to be in their toolbox. Steel culverts will also continue to be needed for many installations but should not be used exclusively as a corrective measure replacing plastic.

Somewhere along the way we changed the product without changing procedures. Vermont Local Roads is continuing to collect field data and will be using that information in an upcoming culvert workshop. Along with the installation procedures, we will cover the different products available and when to use them, budgeting for culverts, providing contractor specifications, closing a road, available

technical assistance, and grants that may be considered. At the workshop we will show and distribute a Vermont Local Roads video production that shows a Vermont town using best practices to install an HDPE culvert. This video will also become available for general distribution to towns. This workshop will be available in early spring. In the meantime we will be putting a follow-up to this update in our Fall Newsletter. Please call me at the Vermont Local Roads office if you have questions or need immediate assistance with culvert issues.

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