

# DeIDOT Program to Replace Corrugated Metal Pipes with RCP Alternative

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Since the early 2000s, the Delaware Department of Transportation (DeIDOT) has been focused on replacing aging and corroding corrugated metal pipe culverts throughout the state. DeIDOT defines a state-length bridge as a structure with a hydraulic opening greater than 20 square feet. The federal definition of a bridge is a structure over 20 feet in length measured along the centerline of the roadway. Delaware's bridge inventory consists of over 1,600 federal and state-length bridges. Approximately 50% are culverts.

In the late 1970s and early 1980s, several hundred short-span timber bridges were replaced with corrugated metal pipe culverts. Due to Delaware's coastal climate, roadway salt usage, and farm runoff in the streams, metal pipe culverts corroded at a faster rate than in environments that are not as corrosive. Metal pipes make up roughly 66% of DeIDOT's structurally deficient bridges, while comprising approximately 15% of the total bridge inventory. To address apparent safety concerns, and structurally deficient culverts, DeIDOT undertook a program to replace the corrugated metal culverts, using products and technology offered mainly by ACPA members.

When the focus on metal pipe culverts began in the early 2000s, DeIDOT maintained over 450 metal pipe culverts. The inventory had been reduced to 240 by the end of 2015. In comparison, the inventory of concrete culverts, including pipes, boxes, and three-

sided frames, has grown to nearly 600, which is about two-thirds of culvert structures. Highlights from these projects include:

- First concrete pipe jacking project in Delaware
- First centrifugally cast concrete pipe liner used in Delaware
- Pre-purchase of precast boxes and frames to replace failed metal culverts in an expedited manner for emergency projects.
- Streamlined permitting for most projects by recessing concrete pipes and concrete boxes to enable aquatic organism passage.
- Four to six locations bundled under one contract for replacement using reinforced concrete pipes.
- On-call contractor to replace up to 15 metal pipe culverts with reinforced concrete pipes over a 3-year period as locations are identified.



**Corroded corrugated metal culvert that was replaced with precast concrete.**

Additional notable projects that were in design at the beginning of 2016 include:

- Design-build project to replace over 30 metal pipe culverts over the next 4 years
- Project to potentially jack a box culvert under a high volume roadway
- Continued focus in DeIDOT's Capital Transportation Program for replacing failing pipe culverts with ACPA products.



Photos: Courtesy of DelDot.

### Quick Notes

Who	Delaware Department of Transportation (DeIDOT) American Concrete Pipe Association Producer Members
What	DeIDOT's Capital Transportation Program for replacing failing pipe culverts with ACPA products.
Why	Several hundred short-span timber bridges were replaced in the late 1970s and 80s with corrugated metal pipe culverts that began failing in the early 2000s, due to Delaware's coastal climate, roadway salt usage, and farm runoff in the streams.
When	2015
Where	State of Delaware
How	Replace the corrugated metal culverts using products and technology offered mainly by ACPA Producer Members.

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