

## **Installation of Ductile Iron Pipe (DIP) versus Poly Vinyl Chloride (PVC) pipe in Prescott**

By Mayor Phil Goode, City of Prescott

First, I would like to wish everyone a Happy New Year! As we look to the year ahead, I hope that yours will be a prosperous one!

One of the issues that we continually deal with in the City of Prescott is replacement of old underground infrastructure. Water mains, sewers and other infrastructure deteriorate over time and eventually fail. Some of our underground pipes and lines are nearly 100 years old and still going. Other, newer installations seem to fail prematurely. One of these types that has been problematic, is Poly Vinyl Chloride, or PVC pipes. Meanwhile, Ductile Iron Pipe (DIP) has a relatively long life span and can be more cost effective in the long run. I asked our Public Works Department to provide some facts and figures about these two solutions for underground infrastructure.

PVC pipe is a thin-walled, smooth pipe made from petroleum products that has many functional applications in the utility industry including potable water, storm drains and sewer systems. It is relatively inexpensive, lightweight, and resistant to corrosive soils. Ductile Iron Pipe (DIP) is made from recycled iron and it can be recycled again when it is removed from our systems. DIP is lined with cement-mortar to protect the interior of the pipe and mitigate corrosion. DIP is rated for high pressures, has a tensile strength 9 times higher, 8 times greater crushing strength and a lifecycle that is typically twice that of PVC.

PVC was first installed in the Prescott area in the mid-1980s. However, in the 1990s, the city began to experience numerous failures on PVC water lines in neighborhoods including Hassayampa, Marvin Gardens, Cliff Rose and at the Ranch. In many cases, the root cause of the failure was related to the installation process wherein the pipe was not properly bedded and as the PVC aged, leaks and line breaks occurred. We did not experience the same rate of failure for DIP. In fact, the average lifecycle of PVC in Prescott has been 20-30 years while DIP has lasted 60-80 years.

The costs of DIP at \$36 per linear foot is recovered through the longer lifecycle versus PVC at \$33.50 per linear foot. DIP has proven to be a better investment with fewer leaks, breaks and service interruptions on our potable water lines. In summary, DIP is the preferred material. With a longer projected span of service, this also reduces the number of disruptive replacement projects and emergency utility outages. For all these reasons, the city replaces all potable water pipes with DIP and we have adopted DIP as a requirement for water pipe through our General Engineering Standards (GES).

I would like to thank the Public Works department for their information, and Councilmember Rusing for bringing this matter to the public's attention a few years ago. At the City of Prescott, we will continue to seek out the most efficient, effective and high quality solutions for delivering utility service to our citizens.