UDOT STORM WATER DRAINAGE PROJECT HONORED

BY INDUSTRY

By Plastics Pipe Institute Inc.

Underwent Total Reconstruction During 2015 Including a New Underground Storm Water Drainage System

The pipe's life–cycle savings compared to other drainage and water management systems are significant – users can expect a service life of 100 years in many typical drainage applications.

Fast Facts

- **Project: Storm Water Drainage System in Tooele**
- **Completed in: 2015**
- **Product: HDPE Corrugated Plastic Pipe**

The new storm water drainage system in Tooele, Utah won the Plastics Pipe Institute Inc.'s (PPI) Project of the Year Award for the association's Corrugated Plastic Pipe Division. Advanced Drainage Systems, Inc., the manufacturer of the large diameter pipe used on the project, received the award at the group's annual membership meeting in May. PPI is the major trade association representing all segments of the plastic pipe industry. ☞ **www.plasticpipe.org**

Completed in 2015, the project runs 4.5 miles through the middle of downtown Tooele and used more than 21,000 lineal feet of ADS N–12® corrugated high–density polyethylene (HDPE) pipe in diameters from 12 to 48 inches. Previously, the majority of the storm water travelling along Main Street – SR–36 – flowed in gutters along the sides of this state road, the main thoroughfare in Tooele. This reconstruction venture between the Utah Department of Transportation (UDOT) and the City of Tooele removed and replaced the aging street, and moved storm drain lines underground. This alleviated flooding and other potential hazards along the most travelled route in Tooele.

For Tooele, a city located 35 miles southwest of Salt Lake City, speed of installation was critical. A construction task force was mobilized to rip up old pavement, install the new underground infrastructure including the HDPE storm water drainage system, and repave in the shortest amount of time to keep traffic flowing.

"The use of corrugated HDPE pipe with its long stick length enabled crews to work quickly," commented Tony Radoszewski, president of the PPI, "and the pipe's light weight made it possible to thread sections under existing utility lines without the use of heavy equipment that RCP would have required. Also, the pipe made it possible for just–in–time (JIT) deliveries to where the crew was working on any given day, which could not have been accomplished with RCP. This also eliminated the large staging area RCP would have required."

"The use of dual wall corrugated HDPE pipe for storm water drainage has increased dramatically during the past several years. This includes numerous projects for UDOT, which has been one of the top DOTs to specify HDPE pipe for the past

ADS Team Receives Project of the Year Award for Corrugated Plastic Pipe Division From PPI

20 years," offered Daniel Currence, P.E. director of engineering for the Corrugated Plastic Pipe Division of PPI. "This is due to several factors such as the pipe's strength, durability, joint integrity and long–term cost–effectiveness. High–density polyethylene is one of the most chemically inert of all plastics and therefore is extremely chemical and corrosion resistant. The pipe's life–cycle savings compared to other drainage and water management systems are significant – users can expect a service life of 100 years in many typical drainage applications. Soil and water tight joints keep water inside the pipe, and prevent infiltration by groundwater. This ensures that communities such as Tooele are environmentally safer and minimize the potential for loss of surrounding bedding material. These integral joints meet the stringent standards mandated by the EPA and comply with ASTM and AASHTO specifications."

Additionally, the pipe's structural capacity to withstand vehicle weight has been proven under Cooper E80 Loading conditions.

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> **Tony Radoszewski**
> President, Plastic Pipe Institute

"The pipe's strength is due to its design, HDPE resin, and manufacturing process," Currence explained. "The structural integrity of corrugated HDPE pipe can be validated using the design procedures outlined in the AASHTO LRFD Bridge Design Specifications. AASHTO LRFD Section 12 is a conservative strain–based design procedure suitable for thermoplastic pipes such as HDPE, polypropylene, and PVC. The AASHTO LRFD code considers the actual failure modes of thermoplastic pipe such as thrust, wall buckling, as well as combined strain to ensure a viable design. Deflection is considered as a service limit and serves as confirmation of the design and ensures suitable long–term performance.

"The crew in Tooele found that HDPE pipe sections could be easily handled with minimal equipment by one or two people, making it a favorable alternative to the much heavier and shorter length sections of concrete pipe." he continued. "While an 8–foot section of reinforced concrete pipe can weigh a few thousand pounds, a section of HDPE pipe of the same diameter will weigh just a few hundred pounds. And because HDPE pipe has nominal 20–foot lay lengths, the number of joints are reduced, which also saves labor and installation time."

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About the Contributor

Plastics Pipe Institute Inc. is the major trade association representing all segments of the plastic pipe industry and is dedicated to promoting plastics as the material of choice for pipe applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in development and design of plastic pipe systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods.

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