



PennDOT District 9-0

Use of

SNAP-TITE

Liner

on I-99 in Bedford & Blair County



Overview

- **Problem:** Existing corrugated metal pipes underneath I-99 have deteriorated or are deteriorating. Some pipes are as deep as 58 feet.
- **Possible Solutions:**
 - 1.) Open cut replacement
 - 2.) Pipe jacking
 - 3.) Pipe rehabilitation using a slip line system
- Traditional open cut replacement and pipe jacking were determined to be more expensive and time consuming so the Snap-Tite System was chosen because of the numerous benefits it offers.
- The Snap-Tite System was called out as a proprietary item for this project.

Overview Continued

- The only permit requirement was a standard GP-11 (Drainage area > 100 acres).
- ISCO Industries was required by the Bureau of Design to submit engineering comps that showed the pipe would withstand the deepest depth as a stand alone pipe.
- Snap-Tite liners are inserted into existing deteriorated pipes and then a flowable fill grout is pumped around the new pipe.
- Approximately 24,595 linear feet of Snap-Tite liners will be used for this project.

Benefits

- Cost effective
- Ease of Installation
- No open cuts required
- Integrity of roadway is maintained
- No traffic interruption needed
- Secure Joints
- Flow characteristics will be the same or better

Cost Effectiveness for I-99 Project

Traditional Method - Open Cut Replacement

Class 1 & 4 Excavation	\$2,832,060.00
Pavement Restoration	\$458,700.00
Concrete Pipe (variable diameters)	\$2,676,855.50
<i>Total</i>	\$5,967,615.50

Pipe Jacking Method

Pipe Jacking Cost is an estimated total cost of material and equipment needed.	<i>Total</i>	\$6,212,575.75
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Snap-Tite Method - Rehabilitation

Snap-Tite Liner (variable diameters)	\$3,630,046.00
Annular Space Grouting	\$654,489.00
<i>Total</i>	\$4,284,535.00

<i>Savings Compared to Open Cut</i>	\$1,683,080.50
<i>Savings Compared to Pipe Jacking</i>	\$1,928,040.75

Note: Additional cost savings are not figured into these comparisons from limited traffic control needs, minimal user delay costs, and less man hour requirements for the Snap-Tite method

Installation Process

Step 1: Place liner into existing pipe



Step 3: Spray lubricant on end of pipe



Step 2: Install rubber gasket



Step 4: Set second pipe into place



Installation Process

Step 5: Snap pipes together



Step 6: Slide liner into existing pipe



Step 7: Seal ends and install PVC pipes



Installation Process

Step 8: Pump grout around liner



Step 9: Cap PVC pipes and seed and mulch

