

# An Environmentally Sound Alternative

To Underground Pipe Rehabilitation

Municipal

Industrial

Residential

Pool and Spa



"In one repair our  
purchase of Pipe Patch  
paid for itself!"

– *Mike Fields*  
Water Pollution Control  
Plant Director  
Marshalltown, IA

# Source 1 Environmental

Source 1 Environmental, LLC is a privately-held company that specializes in selling unique, value-based solutions to the Infrastructure Rehabilitation, Maintenance and Environmental Management industries. As a family-owned company, we bring over 40 years of industry experience, and have grown our PipePatch® product line into one of the premier, trenchless point repair methods in the world.

PipePatch cured-in-place pipe (CIPP) is a point repair solution installed from the inside with the capability to rehabilitate pipes ranging in diameter from 2 to 24 inches. PipePatch provides both flexibility and adaptability to your specific project requirements within the municipal, residential, pool and industrial markets while reducing long-term maintenance and significantly increasing service life expectancy to a minimum of 50 years.

Outstanding quality has been at the forefront of Source 1 Environmental's success and all products are manufactured and tested to meet U.S. and International approvals, thereby ensuring high product quality is consistently maintained.

Excellent service, training and sales support is an integral part of Source 1 Environmental's philosophy. A dedicated team offers on-site training and our internal staff are continually available to attend to any questions or assistance.



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No trenches to dig means quicker rehabilitation and less effects on environmentally sensitive areas such as wetlands, rivers, public parks, natural habitats and historic sites.

## Trenchless Technology

The increasing rate of sanitary and storm sewer deterioration requires an efficient and cost-effective rehabilitation solution. PipePatch's trenchless technology replaces the need for contractors to carefully dig while maneuvering around utilities to unearth the area in need of repair.

By using PipePatch's trenchless technology methods, you are reducing the high costs associated with traditional dig methods of pipe rehabilitation. Costs such as replacing existing surfaces like sidewalks, pavement, landscape, brick pavers, sod and so on.

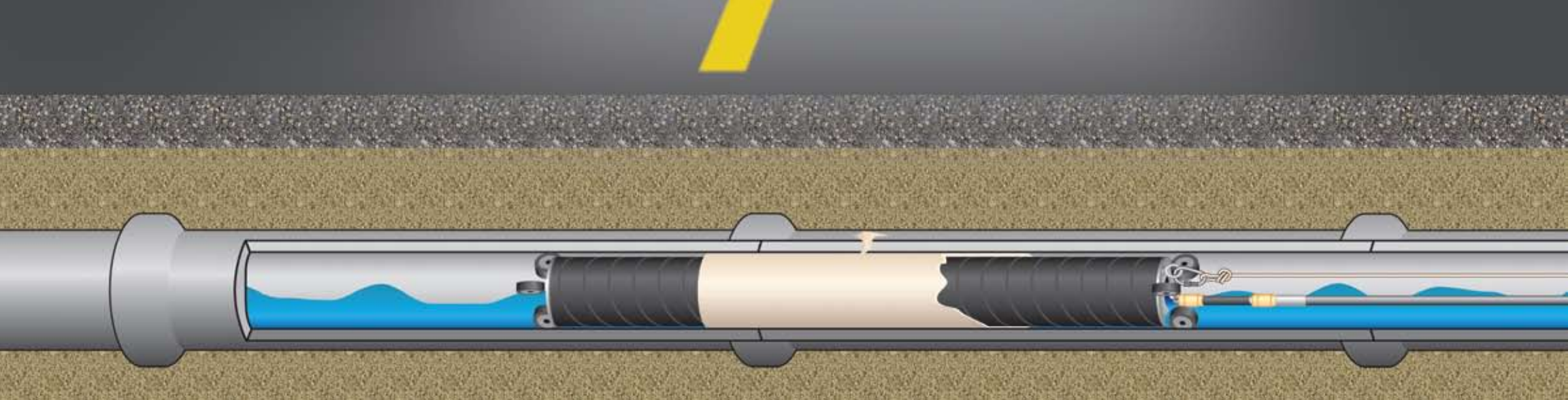
PipePatch's trenchless technology also eliminates the negative impacts on the daily life and activities of people, businesses, homes and traffic in the area. Undesirable noise and environmental pollution are also eliminated with PipePatch's trenchless technology.

*"This technology is another option that has its place in avoiding surface disruptions. This repair was completed in a minimal time frame, on a busy street and at a considerable cost savings to the rate payer."*

*– K. Stone  
Operations Manager - Portland, OR*



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# Cured-in-Place Pipe (CIPP) Point Repair System

## **Cured-in-Place Pipe (CIPP)**

CIPP is a process where a liner is inserted into a pipe impregnated with a thermosetting resin, which is expanded and cured to form a tight-fitting liner within the host pipe, a pipe within a pipe. The CIPP process incorporates the existing pipeline into the finished product to produce improved performance of the original pipeline. Although cure times vary due to host pipe material and temperatures, PipePatch is typically cured in 1 to 3 hours.

## **Point Repair**

Point Repair is PipePatch's cost saving process of lining only the areas that require repair versus lining the entire length of pipeline. PipePatch's point repair system not only saves material costs but also man-hours. Depending on the pipes diameter, PipePatch requires only 1 to 3 technicians to complete a repair.

## **Structural Integrity**

PipePatch restores structural integrity to damaged pipes and exceeds Specification ASTM F1216 for Cured-In-Place-Pipe (CIPP). This Specification requires our materials to be tested for a minimum service life of 50 years. Our fully cured resin serves as a barrier between the damaged pipe and the flow, or as a stand-alone pipe.

## **Increased Flow Capacity**

PipePatch provides the least reduction of all point repair methods used to rehabilitate pipes. When cured, PipePatch is only 1/8 inch thick. The smooth interior of our product with tapered ends typically improves flow capacity. The smooth interior also provides excellent corrosion and abrasion resistance.

*"We have been extremely pleased with the Pipe Patch system. We have put six in the ground over the last year, each one working as prescribed."*

– Barry Dobbins  
I & I Manager - Hampton, VA



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# Health, Safety and Environmental Concerns

## Health

PipePatch utilizes a patented non-hazardous resin that is odor-less and non-flammable. PipePatch is safe for installers and the community.

## Safety

Work sites are much safer to citizens, traffic and workers due to PipePatch's trenchless technology. OSHA estimates that nearly 63 workers are killed in trenching accidents each year. The accident rate of trenching work is 112% higher than that of construction in general.

PipePatch uses a unique air activated flow-thru packer for its CIPP expansion process. No dangerous steam or hot water is necessary.

## Environmental

Because PipePatch resin is non-hazardous, it requires no special transport or disposal considerations and is completely safe for the environment.

PipePatch's trenchless technology eliminates:

**Soil Disruption** - contaminated soil is often found at pipeline construction sites requiring specialized equipment and personnel for disposal.

**Air Pollution** - caused from fine soil particles being wind blown, motor vehicle emissions due to heavy equipment and traffic congestion.

**Water Pollution** - open trenches can fill with rain and water causing soil erosion and contaminated solids runoff into streams, rivers and sewers.

**Noise Pollution** - heavy equipment produces level of noise that can cause a great deal of trouble to hospitals, schools, businesses and residents.

"Thanks to the superb training and tools to do the job right the first time. It's an effective and cost effective system. We look forward to many more successful installs."

– Rich Heil P.E.  
Public Works Maintenance - Eugene OR



# PipePatch® Advantages

## PipePatch Resin

PipePatch utilizes a patented non-hazardous resin that is odor-less, non-flammable and cures in the presence of water. With outstanding bonding properties to most materials and resistance to 63+ chemicals and oils the PipePatch resin requires no special transport or disposal considerations.

## PipePatch Liner

The key design consideration in CIPP liner installation is the ability of the cured-in-place pipe to withstand buckling. Buckling occurs due to persistent loads from ground water, soil, and live loads, which causes the pipe to creep reducing its capability to resist external pressures. The resin and lining tube type combine to determine potential buckling. There are generically two types of lining – non-reinforced and reinforced liners. PipePatch uses a fiberglass reinforced liner to avoid any potential buckling.

## Training and Support

PipePatch can be installed only by Certified PipePatch installers. Source 1 Environmental offers free, on-site Certification training to municipalities and companies who purchase the PipePatch system.

## Pre-Measured Kits

PipePatch is supplied in a range of portable kits containing the necessary pre-measured resin, liner and consumables to carry out an efficient pipe repair.

## Low Investment

There are no franchise fees with PipePatch, just a small initial equipment investment.

## Utilized Worldwide

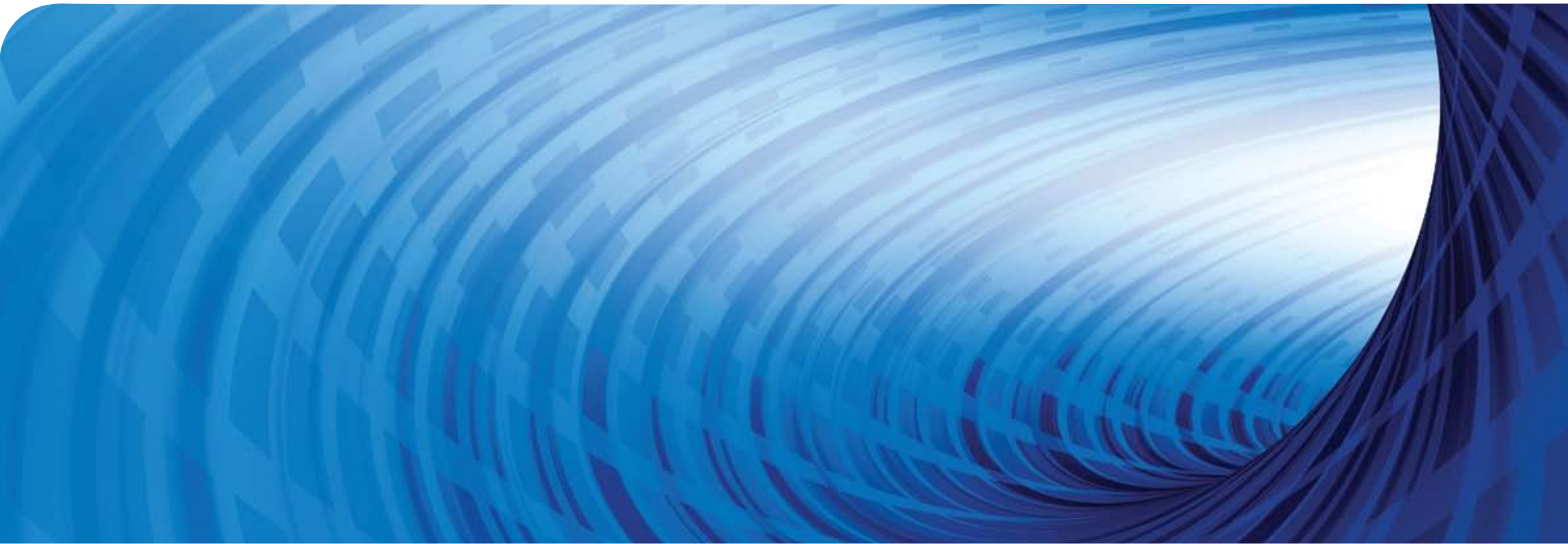
PipePatch has been improving underground municipal infrastructure sewer and storm water systems worldwide for over 10 years.

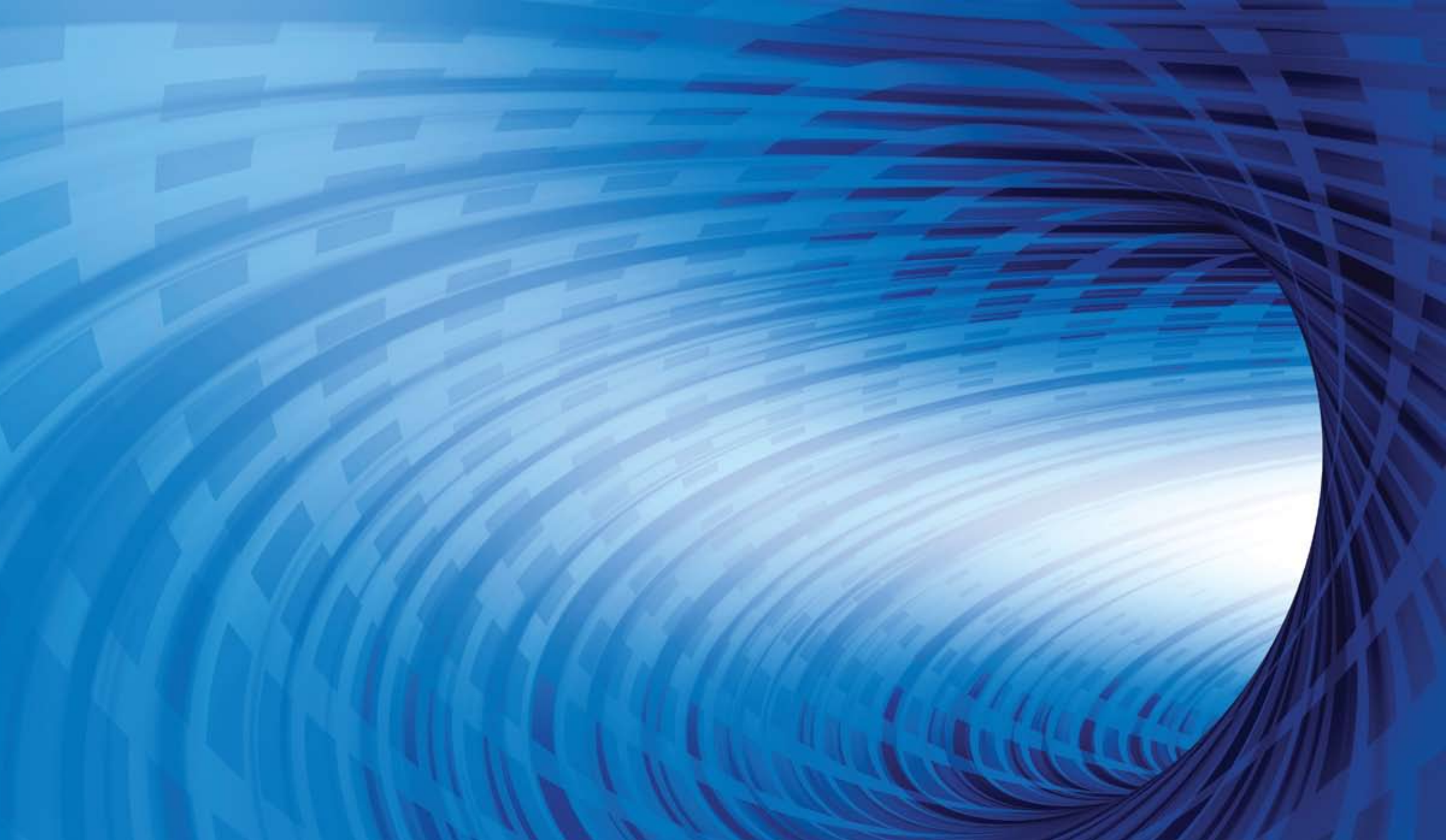
*"We will definitely consider this as an option on future pipe breaks."*

*– Steve Hook  
City of Mesa, AZ*



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# Satisfied Customer History

"We complete 8 to 10 repairs per week. We use it to repair cracks, infiltrations and root intrusion. We appreciate the support you and your company have provided us. Thanks."

– Sam Rose - Construction Manager  
South Placer Municipal Utility District – Rocklin, CA

"I applied for stimulus money and didn't get it. I have a few spots I need repaired and it's a good thing I have PipePatch because I can't afford to have them dug up. I also have a few larger sizes to repair and will have City Sewer do them."

– Randy Baeutigam - DPW Superintendent  
City of Frankenmuth, MI

"I've done a cost analysis of doing a PipePatch versus a dig and replace. Fully loaded cost to do a PipePatch of my labor (union) of four people, Jetter/Vactor Truck, Camera Truck, fuel, and the cost of an eight-inch footer is \$1,100. The bare minimum I can repair a shallow line is \$5,500. This includes my time & materials plus an asphalt contractor. Using PipePatch, I can do a repair in three hours versus an open cut of two to three days."

– Rob Smith – Sewer Foreman  
City of Flint, MI

"The Town of Tonawanda recently bought the Fernco PipePatch System from EJ Prescott. This system saved our town money, not only in man hours, but in restoration costs as well. The pipe we patched was 8 inches and buried 9 feet deep. If we'd gone the traditional route, we would have had to tear out a fence, adding even more costs to the job. And the entire project took just three hours, compared to a conventional repair, which would have taken several days."

– Jim Coho  
Town of Tonawanda, NY

"Thanks to the superb training and tools to do the job right the first time. It's an effective and cost effective system. We look forward to many more successful installs."

– Rich Heil P.E. – Public Works Maintenance  
Eugene, OR

"This technology is another option that has its place in avoiding surface disruptions. This repair was completed in a minimal time frame, on a busy street and at a considerable cost savings to the rate payer."

– K. Stone – Operations Manager  
Portland, OR

"We have been extremely pleased with the Pipe Patch system. We have put six in the ground over the last year, each one working as prescribed."

– Barry Dobbins – I & I Manager  
Hampton, VA

"Your demonstration was professional, quickly conducted and turned out to be extremely effective in repairing an area we had been putting off."

– Steven Sanders – General Manager

"We will definitely consider this as an option on future pipe breaks."

– Steve Hook  
City of Mesa, CA

"In one repair our purchase of Pipe Patch paid for itself!"

– Mike Fields – Water Pollution Control Plant Director  
Marshalltown, IA

"The Town of Grand Island repaired an 8-inch pipe buried 13 feet deep. The line was only 6 feet from the edge of East River Road and about 25 feet from the river, under an 8-inch cast iron water main, about 4 feet underground. If the town had gone with a conventional repair, instead of the PipePatch, we estimated that it would have cost taxpayers over \$10,000, including the cost of driving sheet piling to protect the road from collapse while we made the repair and replacing the resident's driveway. In that one repair, we saved enough to pay for the system. And I still have three patch kits available for future use. Plus the entire process – from start to finish – took just four hours."

– John Whitney – P.E.

"We have been using your PipePatch product since June of 2006. To date (2-1-07), we have used 30 patches on our local drainage systems and would like other cities who are considering your product to know how much it has helped our Construction Division and saved our city. We estimate that it has saved the City of Kansas City upwards of \$250,000 due to the ability of patching damaged pipe without disturbing roads, needing to dig, re-directing traffic or having to replace landscaping. Our Construction Division has really taken to the ease and benefits of your product. Thanks again for the new technology and the support you have given us in the field."

– Jeff Anderson – Operations Superintendent  
City Kansas, KS

"We have just completed a two year footing rain disconnect project in the city. We disconnected storm water from the sanitary sewer in over 300 ho's. During this process our contractors were introduced to PipePatch. This product was a great help to our project. The PipePatch product allowed us to seal off the run in trap without having to breakup floors or disturb areas that were finished in homeowners basements. By using PipePatch the contractor saved the City of Davison money and kept the homeowner happy. The City of Davidson is looking forward to using PipePatch to continue eliminating our inflow and infiltration issues."

– Brian C. Klaassen DPW Director,  
Davison, MI

"In the City of Flint, MI I spoke with the Sewer Super Attendant. In his calculations it cost roughly \$5,500 dollars to go to a street and dig-up a shallow sewer to make a repair. In contrast, by using the PipePatch system he can go to the same repair and do the job for roughly \$1,500."

– Michael J. Deneen  
Michigan Pipe & Valve - Flint, MI.



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# Current Michigan Projects

## City of Troy, Michigan

Richard Shepler  
Water & Sewer Superintendent  
4693 Rochester Road  
Troy, MI 48085  
Office: 248-524-3395  
Mobile: 248-885-1844

## City of Davison, Michigan

Footing Drain Disconnect  
Program  
Daryl Little-Waldorf & Sons  
Excavating  
9118 N Dort Hwy Mt Morris, MI  
48458-1257  
Office: 810-564-5000

## City of Burton, Michigan

Mike Holzer  
Public Utilities Supervisor  
4303 S Center Road  
Burton, MI 48519  
Office: 810-743-1500

## Davison Township, Michigan

Randy Stewart  
Building & Planning Official  
1280 N. Irish Road  
Davison, MI 48423  
Office: 810-653-4156

## City of Flint, Michigan

Robert Smith  
Sewer Foreman  
Water Service Center  
3310 E. Court Street  
Flint, MI 48506  
Office: 810-766-7079  
Mobile: 810-691-1988

## City of Frankenmuth, Michigan

Randy Braeutigam  
DPW Superintendent  
240 West Genesee Street  
Frankenmuth, MI 48734  
Office: 989-652-3443  
Mobile: 989-529-6821

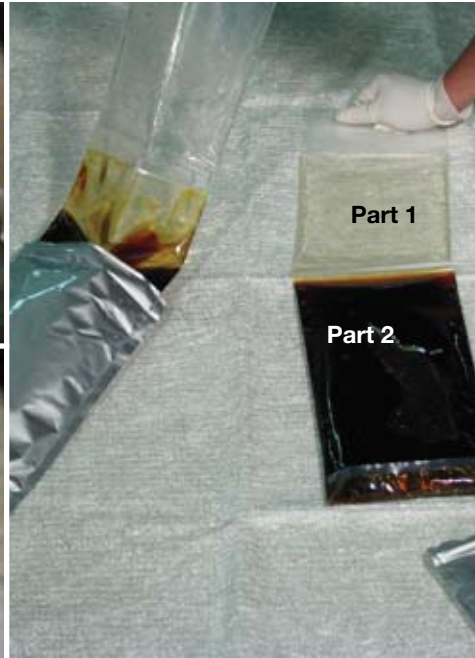
## City of Ludington, Michigan

Jon Kortge  
Utility Maintenance Superintendent  
975 First Street  
Ludington, MI 49431  
Office: 231-845-1500



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## Ease of Use

### Clean the Pipes

Once the problem is identified, the first step is to clean out all roots and descale any calcite, etc. in order to return the pipe back to its original functioning diameter. Typically water-jetting is used.

### Prepare Resin and Packer

PipePatch is supplied in a range of portable kits that contain the necessary pre-measured resin and consumables required to carry out an efficient pipe repair. Kits are available for 2 to 16 inch pipe diameter with lengths of 2 and 4 feet. PipePatch® resin consists of two components which are supplied in a pre-measured ready to mix resin bag.

The two parts are separated by a sealing clip and are mixed by simply removing the clip and mixing the two parts together. The transparent bag shows that the two resins are thoroughly mixed when a uniform color is achieved. Spread the resin onto the supplied fiberglass liner then wrap the saturated liner onto the packer.

### Push Packer Into Place

Insert the packer into the pipe and push until it reaches the repair area then inflate the packer. Once the epoxy lining has cured (1 to 3 hours), the packer is extracted, leaving a complete structural pipe within a pipe.



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