



By evaluating our systems based on gathered information, we can better forecast repairs and replacements with fewer emergencies.



# How to Minimize Emergency Pipe Repairs

By Doug Riseden, HYMAX Technical Support Manager for Mueller Water Products

Water main breaks have an uncanny way of always happening at night, on weekends and during the holidays – or it seems that way anyway. While it would be great to have a glass ball to predict when these breaks happen, the reality is that emergency pipe repairs are a fact of life for utilities. How can we minimize their occurrence and make them less severe, shorten water off times that lead to closed businesses, frustrated customers and other negative consequences? A sound approach is to look backward as we move forward, gathering information and data to help forecast when repairs and replacements are needed, and converting these emergencies into scheduled repairs. Here are some steps for gathering the information and data you need, recording it and assessing when repairs or replacements are needed. By following these steps, you are more likely to have fewer emergencies at nights or on weekends and holidays.

1. Keep Accurate Records of Previous Repairs and Installations
2. Answer the Five W's (and How)
3. Keep Track of New Installations by Other Utilities
4. Take Photos and Shoot Video
5. Assess and Plan

## 6. Make Repairs with the Right Products

### 1. Keep Accurate Records of Previous Repairs and Installations

It is critical to keep accurate records of previous repairs and installations to understand when and where breaks are most likely to happen. Establish best practices to keep records for every repair and new installation by sitting down with your crews to discuss the need for accurate record keeping. Employees who have been with your utility for a long time can offer all sorts of information and details about the original installations, such as when and where they took place. Recording this insight is invaluable as you never know how long they'll be with your utility.

You'll also need to establish a way retain your information. There are many software solutions available that can keep these records and store them for future capital improvement projects (CIPs). Information gathering is critical – in fact, with fewer employees, it's even more important to ensure information is shared. You don't want to lose the knowledge the employees have, should they decide to go elsewhere. You may only have a homemade form to record information - it doesn't matter. Write it down and use it to upgrade your data and utility maps.

### 2. Answer the Five Ws (and How)

Your records should be able to answer the 5 W's (who, what, when, where, why) and how.

#### Who

Who made the repair? Who were the crew members involved?

#### What

What kind of repair was made (e.g. repair or replace, fixing a previous repair)? What kind of product was used (e.g. clamp, coupling)? What material is the pipe made of?

#### When

What date and time was the repair made? Under what weather conditions (e.g. temperature) was the repair made?

#### Where

Where was the repair made? Give exact locations or triangulate the location based on available information.

#### Why

Why did the break occur (e.g. old pipe that broke due to age, another utility hit the line, product defect, ground movement)?

#### How?

How many times have we repaired a section of pipe? How old is the pipe?

When in doubt, err on the side of more detail, not less.

### 3. Keep Track of New Installations by Other Contractors

New construction seems to be going on almost everywhere. It could be something your utility is involved with or a new project where outside companies are doing the installation. These new assets will eventually be managed by the utility so it's important to know everything about them. Before the first shovel goes in the ground to the project meets all local, state and federal requirements. Inspect the final prints (i.e. the "as built") to make sure they are accurate. In most cases they will simply be another set of the original prints, so if there are changes ensure you have an engineer make those corrections on the final prints.

### 4. Take Photos and Shoot Video

I am a huge fan of photos and videos, before, during and after the project. Most smart phones can take great photos and shoot decent video. Take plenty of pictures and download them to your computer for future reference, particularly the details on a utility line that has become a part of your system. Organize these photos and videos by project, and use these to upgrade maps, order repair parts, and locate lines for when they need to be replaced.

### 5. Assess and Plan

How's all this information going to help your utility? By taking all the information that you've gathered you can evaluate when repairs or replacements need to take place. If you note that you've been to a certain location several times recently, you should consider replacing that section of pipe.

When you begin to gather data and information, you can list and prioritize repairs and plan for replacement projects. You may need to reschedule sections to replace because of the frequency of repairs for another section. If it's a CIP project, it may require floating a bond or putting in a grant application. All of this information can help with project plans and preparations and obtaining the buy-in of stakeholders and your municipal council.

### 6. Make Repairs with the Right Products

While it's great to plan repairs and replacements, you need to make sure that you have the right product on hand for any repair. While larger manufacturers can ship most emergency pipe repair products overnight, some products that need to be made to order require time to design and manufacture, so planning is extremely important in these cases.

Make sure you have the right product on hand for emergency repairs. We've all been in that position at least once in our careers – the emergency arises, and we don't have the product on hand to fix it.

Be sure to order parts well in advance, and I recommend having at least two repair products on the shelf for each size pipe in your system. By building a good relationship with your supplier, they should be able to help you out when those emergencies arise.

Planning ahead for repairs and replacements and having repair products on hand will help you change your emergency repairs to scheduled repairs. When you plan and prepare, repairs can be done according to your schedule and help to minimize emergencies.

#### About the Author

Doug Riseden, HYMAX Technical Support Manager for Mueller Water Products, has worked in the public utility field for over 25 years. His extensive experience with water and wastewater repairs and operations includes working for municipalities and private contractors and providing water services to the NATO-led security mission in Afghanistan as part of Operation Enduring Freedom.



Look to be involved in the installation of other utilities as they will be eventually turn over to you. Ensure the plans of the project meets all requirements and the final prints are accurate.



Coupling being installed. Be sure to keep your inventory stocked with at least two repair products on the shelf for each to minimize time handling emergencies.