The Hidden Danger *of Failing Water Infrastructure*

Putting American Families at Risk

A study presented by

2013 GIULIANI PARTNERS

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INFRASTRUCTURE: AN ABSTRACT NATIONAL ISSUE OR A REAL THREAT TO HOMEOWNERS?

America's infrastructure – roads, bridges, waterways, and water and wastewater systems – are an integral part of what made our nation great. As recently as 2006, America's infrastructure ranked in the top ten for overall quality. Today, we are ranked 25th, below many of our biggest trading partners and even some developing nations.[1]

How did our infrastructure – the backbone of a modern economy and lifestyle – become so fragile? Infrastructure is complicated and expensive, but the truth is that America has not been vigilant about the shared burden of infrastructure upkeep. Our bridges and water mains are getting older, and instead of investing to keep them updated, we collectively hope the structures nearest to us will keep working.

The decay of America's critical infrastructure isn't news, but there is a crucial untold story that American families need to hear today. Infrastructure can be a big, abstract concept, despite the fact that we use it every day, but failing water systems can quickly become a very real threat to homeowners. This paper will focus on the impact that deteriorating water and wastewater systems are having today on individual American families, the reason for this hidden danger, and why it is only getting worse. The bottom line is that American homeowners must take steps today to prepare themselves and protect their families, homes, and finances from the costs and damages of water infrastructure-related home emergencies.

NOT GETTING ANY YOUNGER: AMERICA'S WATER INFRASTRUCTURE TODAY

America's water infrastructure is in a state of crisis. Both our water and our wastewater pipeline systems are in disrepair. In fact, the American Society for Civil Engineers ("ASCE"), a preeminent, respected authority on structural systems reliability and maintenance management, grades the condition of today's drinking water infrastructure a D.[2] What is more, the ASCE also gives the score of D to our wastewater infrastructure.[3] A "D" is not a good place to be.

Aging Drinking Water Infrastructure. America has an amazingly large water infrastructure system with over a million miles of pipes
dire just yesterday. The fact is that water pipes have a limited useful life and we are not investing fast enough in the upkeep of our legacy pipes.

[*] *Giuliani Partners is an advisor to HomeServe, working to help raise awareness of the need for water and sewer infrastructure investment and consumer protection nationwide. Through this association, Giuliani Partners and HomeServe are working together to educate homeowners on their water and sewer/septic service line responsibilities as well as how they can prepare and protect themselves from the significant cost and inconvenience of a home emergency.*

- ⇨ *The issue is not the quality of our drinking water, but the disrepair and overuse of the component parts that make up our drinking water system. The pipes that carry our water are old and getting older. The likelihood of failure increases dramatically as they age. Pipes last from 15-95 years, and the average age of a broken main is 47 years old.* [4]
- ⇨ *Close to 25% of our pipes were installed over fifty years ago, with some pre-dating the Civil War in the 1860s. This means that something like 250,000 miles of America's water infrastructure may already be operating on borrowed time.* [5]
- ⇨ *This wouldn't be alarming if the burden on our water pipes was distributed evenly, but it is not. Of the 170,000 public drinking water systems in America, just 32% serve 84% of the population (264 million people).* [6] *The consequences of breaks in big cities can be disastrous and expensive to fix.*
- ⇨ *In the early 1980s, 10% of our water pipes were considered to be in poor shape, but that number has skyrocketed to 45% today through lack of investment and the simple passing of time.* [7] *An estimated 240,000 water main breaks occur every year, which translates to an astonishing 650 breaks per day.* [8]
- ⇨ *These infrastructure issues are exacerbated by extreme weather conditions, such as excessive rainfall during hurricane season or unusually hot or cold temperatures. In 2011, the city of Houston suffered the most severe drought on record, with temperatures exceeding 100 degrees Fahrenheit. At the height of the drought, the number of leaks in Houston's infrastructure rose to an all-time high of 11,000, depleting a quarter of the city's water. Sadly for its citizens, 40% of Houston's pipes were installed over fifty years ago, beyond the useful life expectancy of a pipe, and so were not able to handle the strain.* [9]
- ⇨ *Damage to the pipes does increase the risk of contaminated drinking water, not to mention the terrible waste of a precious resource – an estimated 7 billion gallons of drinking water are lost each day from leaking pipes.* [10]

Aging Wastewater Infrastructure. Like their drinking water counterparts, sewer lines in the U.S. are nearing or past the end of their useful life and are losing their structural integrity. According to the Congressional Budget Office, the useful life of sewer lines is fifty years; however, the vast majority of the 700,000 to 800,000 miles of public sewer mains in the U.S. were installed shortly after World War II, which puts them at over sixty years old.[11] Here, expanded development and population growth also poses a challenge, as our sewer systems were not designed with the capacity to handle the amount of waste and other inflow generated today.

- ⇨ *America experiences between 23,000 and 75,000 sanitary sewer overflows – unintentional discharges of raw sewage – per year, resulting in the release of up to 10 billion gallons of raw sewage on an annual basis.* [12]
- ⇨ *Factoring in overflow from combined sewers – sewers systems that collect both sanitary sewage and storm water runoff – the combination of aging pipes and inadequate treatment capacity has resulted in the release of an estimated 900 billion gallons of untreated sewage each year.* [13]

The bottom line is that America's drinking water and wastewater pipelines are aging beyond their safe useful life, and are breaking more and more often, which leads to contamination, costs, and emergencies.

Threats to the Public. Having water and wastewater systems in good working order is a matter of public safety. Potential threats to the safety and security of American homes and families from failing water infrastructure include:

- ⇨ *A broken municipal sewer line can send millions of gallons of raw sewage into our waterways – polluting water that might otherwise be used for fishing, swimming, or downstream as a source of drinking water.*

- ⇨ *Anyone who has experienced a residential sewage leak knows that it produces a foul odor, but it can also present a health hazard. The decay of household waste produces gases in our sewer and septic systems that contain toxic chemicals, most notably hydrogen sulfide and methane, both of which are flammable and explosive. Exposure to these gases can cause, among other symptoms, eye irritation, dizziness, nausea, drowsiness, and in extreme cases, death.*[14]
- ⇨ *Leaks and breaks in water pipes can cause water disruptions or complete loss of service, obstruct emergency response, particularly fire-control, or lead to a boil-water advisory due to contamination.*
- ⇨ *Broken water mains can also result in flooding, damage to other infrastructure like roadways or buildings, and sinkholes.*[15]
- ⇨ *While a simple water main repair can be completed in six to eight hours, large or complicated repairs may take several days to a week.*[16]
- ⇨ *Financial, personnel, and resource costs for these breaks and sewage leaks are a huge burden on municipalities with already-strained budgets. The costs for emergency response and repair combined can in many cases be considerably more than for preventative repairs and replacements.*

What is the Plan? Significant investment is needed in order to address these infrastructure issues, which will only worsen as our drinking water and wastewater systems continue to age and deteriorate. Currently, water infrastructure projects are funded chiefly by municipal bonds and revolving fund programs in individual states.

- ⇨ *Unfortunately, these funds are insufficient to meet the investment needs for any significant projects, and the gap is widening.*[17] *Assuming that every pipe will eventually need to be replaced, reconstituting our water infrastructure could surpass $1 trillion in costs over the next 25 years, and capital investment needs for our wastewater and storm water systems will approach $300 billion over the next two decades.*[18]
- ⇨ *Some states and regions have implemented demand management and conservation measures to reduce water consumption and in turn reduce the amount of strain on water systems. Technology such as water-efficient toilets and low flow shower heads contribute to increasing the efficiency of domestic water use, and the development of additional new technologies and conservation plans may extend the useful life of our water systems further.*[19]
- ⇨ *Washington has at least put infrastructure back on the agenda lately. For example, the Water Resources Development Act of 2013, passed by the U.S. Senate in May 2013 and pending in the U.S. House of Representatives, may help.*[20] *The enactment of this bill could be, in the words of the American Water Works Association, pivotal in "addressing America's trillion-dollar water infrastructure challenge."*[21] *The government programs are key to the long-term solution.*
- ⇨ *The bottom line is that renewing our infrastructure will require time, capital, and strong will at a national and local level. Relying on piecemeal programs, conservation, and emergency Band-Aid repairs does not get at the root of the problem: <u>that these pipes will eventually fail if not replaced in a timely manner</u>.*

THE HIDDEN RISK FOR HOMEOWNERS AND THEIR FAMILIES

Water infrastructure is going to deteriorate over the near future, regardless of whether major spending programs are passed in Washington. It takes tremendous time and investment to revitalize the amount of infrastructure that requires renewal today. With this in mind, the American people should understand the consequences of failing water and sewer infrastructure has on them and their community, and what they can do to stay safe, secure, and avoid financial surprises in the meantime.

While the public safety impacts listed in the section above are frightening, many of them are well known and publicized. One of the most common misconceptions regarding water and sewer infrastructure is that the utility or the government will take care of the problem if there is a leak on private property. Put simply, while local utilities and municipalities foot the bill for repairs to much of our declining infrastructure (although taxpayers or utility customers ultimately absorb some of those costs), the homeowner is primarily responsible for the service line that brings fresh water to their home as well as the sewer/septic line on their property.

Two major problems emerge from this analysis. ***Americans are largely unaware that an expensive leak on their own property is likely their responsibility to fix, often at significant cost. Worse, most American families lack the wherewithal to pay these bills when they unexpectedly arise.***

Who Pays When The Pipe Bursts? If the location of a water or sewer line break falls on a homeowner's property, in the overwhelming majority of cases, it is the homeowner who is responsible for repairing the damage. The result can be a disastrous and unexpected financial shock.

- ⇨ *61% of Americans surveyed are unaware that they are responsible for the water line that runs from the street to their home.[22] When a water line or service line emergency does occur, they are caught off guard, unsure of where to turn to assess and repair the damage.*
- ⇨ *Many may mistakenly assume that the damage is covered by their homeowner's insurance policy. A basic homeowner's policy <u>does not</u> cover water or sewer line breaks on a homeowner's property. Data from the National Association of Insurance Commissioners shows that 37% of homeowners erroneously believe their insurance policy covers damages due to a break in the sewer line on their property[23]. The vast majority of local utilities will also tell homeowners that they must pay the repair bill out of their own pockets.*

How Much is the Bill? Repairing a burst water or wastewater pipe can cost thousands of dollars.

- ⇨ *The price tag for replacing a section of a water service line averages $2,200.[24] Depending on the nature of the repair, fixing a residential sewer line issue can run well into thousands of dollars.*
- ⇨ *It is estimated that 1.1 million homeowners will suffer a water service line emergency in 2013, one every 30 seconds, at a total cost that could exceed $2 billion nationwide.[25] Even more sewer line emergencies are anticipated in the future, with 4.3 million disruptions estimated in 2013.[26]*
- ⇨ *Nearly 45% of America's homes are over 40 years old, and 1 out of 3 are over 50 years old. The pipes supplying these homes are likely just as old.[27]*
- ⇨ *Therefore, as American homes continue to age, the rate of leaks and breaks will likely increase and a growing number of homeowners will face a water line or sewer line emergency – and the bill – in the near future.*

Case Study
Calvetta in Iowa

Just three months after moving into her new home in Des Moines, Iowa, Calvetta, a 41-year old single mother of three, faced a water service line emergency. The leak was discovered by the local water company, which sent a crew to the neighborhood to check the water connections before the city began curb work. Broken between the street and the meter at Calvetta's house, the line was pouring water into the ground.

Calvetta, who owns an in-home child care business for several families in the community, was unprepared to pay thousands of dollars to fix the leak. In April 2013, she was told that it would cost $6,700 for the repairs, followed by a notification from the city that the leak needed to be fixed by May 6 or the water to her home and business would be shut off.

Fortunately, in this case, HomeServe learned of Ms. Williams's situation via a story in the local newspaper and repaired her water line free of charge as part of its commitment to the community, keeping her home and business running.[30]

⇨ *Unfortunately, 64% of consumers do not have $1,000 on hand to cover an unexpected expense.*[28] *So a home emergency repair more than inconveniences homeowners; in many cases, it leaves them in terrible financial straits, at a time in which most American families have enough financial pressures on them already.*

The bottom line is that the direct financial threat to individual homeowners from failing water infrastructure is the untold story of the American infrastructure crisis. It is no longer possible for Americans to look at water infrastructure as a distant, government-and-big-business challenge, because very real consequences are buried directly on their own property.

A Solution for Homeowners: Home Emergency Repair Plans

As our water and sewer pipelines continue to fail, the parties who oversee this infrastructure are recognizing the burden this places on their residential customer base. To address this growing problem and to provide homeowners with a means to protect themselves, many local utilities and municipalities have launched programs offering their customers coverage for water line and sewer line emergencies through partnerships with repair service plan providers. Over a thousand cities, towns, and communities across North America now have access to these programs as a growing number of utilities get on board.[29] Many of these utilities partner with service plan providers to make these programs available to their customers.

The Water for Jobs Campaign, led by the Water Environment Federation ("WEF") and supported by a vast partner network of leading water associations, organizations, and companies, aims to make investment in water infrastructure a national priority and increase the federal role in funding water infrastructure.[30] The American Water Works Association ("AWWA"), the National Association of Water Companies ("NAWC"), and The US Chamber of Commerce are also striving to make safe and sustainable water a top priority through education and advocacy.

It is easy to ignore a problem that is literally buried underground, but the ramifications of our lack of investment have become more than theoretical. Even when these aged water and sewer mains are

Case Study

HomeServe USA

HomeServe USA is a leading provider of emergency home repair service plans, serving more than 1.3 million customers holding over 2 million service plans across 46 states and the District of Columbia, as well as in Alberta, Canada. Close to 900 communities have access to HomeServe's service plans through the company's utility partnerships. The company also provides service plans directly to homeowners under the HomeServe USA brand in many areas.

HomeServe offers coverage for home emergencies spanning plumbing, electrical, and HVAC repairs. Its Exterior Water Service Line Coverage and Sewer/Septic Line Coverage plans provide the homeowner with much-needed financial protection and turn-key repairs. HomeServe's solutions are convenient and straightforward. In the event of a home emergency, the homeowner can simply call the toll-free emergency repair hotline, accessible 24 hours a day, 365 days a year. After the call has been placed, HomeServe dispatches a local, qualified contractor to the homeowner's residence to make the repair or replacement. HomeServe then handles payment of the contractor on the homeowner's behalf.

For an affordable monthly fee, the homeowner pays nothing for covered water line or sewer/septic line repairs that would otherwise cost them thousands of dollars. More than just financial protection, HomeServe also takes care of the repair itself through its network of local, licensed and insured contractors, removing the hassle of finding a qualified professional to perform the repair and expediting the repair timeline by days. Accelerating a water service line repair timeline by just five days can prevent the loss of approximately 80,000 gallons of water from an individual service line leak.[31] *Across all its services, HomeServe estimates that it has saved its customers a total of $100 million over the past three years by covering the cost of repairs through its policies.*[32]

replaced through increased public investment in infrastructure, the final critical link – the lines that connect a private home to the public mains – will continue to age, representing an increased risk to the homeowner. No amount of public investment will address this issue. Every year, the number of burst pipes will likely climb higher – and often it is those who are least able to afford it, who pay the price. Service repair plan providers give homeowners a way to protect themselves, but we must also focus on prevention. It isn't enough to restore our infrastructure to what it once was – we need to rebuild the foundation of our nation to support our needs today.

Most importantly, American homeowners and their families – the backbone of America – need to know that water infrastructure is a crucial part of their daily lives and also a significant threat to their safety and finances. For most people, infrastructure is an abstraction and the extent to which water pipes enter into daily lives stops at the toothbrush, glass, and shower. The very real and increasing risks of burst water and waste pipes on their property *can be mitigated* while our country focuses on revitalizing our infrastructure for the future.

Our national water infrastructure presents a major challenge, not just to the nation and its cities and towns, but to homeowners individually. Americans are problem solvers, though, and they will discover the solutions to this problem and protect their property, livelihood, and families.

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[3] Report Card for America's Infrastructure. American Society of Civil Engineers, 2013

[4] Report Card for America's Infrastructure. American Society of Civil Engineers, 2013; Water is Your Business <http://waterisyourbusiness.org>

[5] Water is Your Business <http://waterisyourbusiness.org>

[6] Report Card for America

[7] Water is Your Business <http://waterisyourbusiness.org>

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[25] Estimate based on HomeServe national repair average 2013 and U.S. Census 2009 American Housing Survey

[26] Estimate based on HomeServe national repair average 2013 and U.S. Census 2009 American Housing Survey

[27] U.S. Census 2009 American Housing Survey

[28] NFCC Financial Literacy Opinion Index, National Foundation for Credit Counseling, July 2011

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[30] <http://www.waterforjobs.org> Water for Jobs, 2013

[30] "Reader's Watchdog: Des Moines Woman Gets Her Wish for a New Water Line." Des Moines Register, April 23, 2013

[31] HomeServe Analysis

[32] HomeServe, 3 Years Ending December 31, 2012