

# Pipelines and Informed Planning Alliance (PIPA)

Summary Report for Elected  
and Appointed County Officials

# Contents

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<b>Preface</b> . . . . .	.3
<b>Background</b> . . . . .	.4
<b>Regulating Pipeline Safety</b> . . . . .	.5
<b>PIPA Report</b> . . . . .	.5
<b>Key Stakeholders</b> . . . . .	.5
<b>Transmission Pipeline Benefits and Risks</b> . . . . .	.5
Benefits . . . . .	.5
Risks . . . . .	.6
<b>Recommended Practices</b> . . . . .	.7
<b>Conclusion</b> . . . . .	.8

# Preface

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The Pipelines and Informed Planning Alliance (PIPA) is a stakeholder initiative led and supported by the US Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA). PIPA's goal is to reduce risks and improve the safety of affected communities and transmission pipelines through implementation of recommended practices related to risk-informed land use and development near transmission pipelines. The PIPA recommended practices describe actions that can be taken by key stakeholders, including local government, transmission pipeline operators, property developers/owners, and real estate commissions, to enhance pipeline safety.

In December 2010, PIPA issued its report, **Partnering to Further Enhance Pipeline Safety In Communities Through Risk-Informed Land Use Planning: Final Report of Recommended Practices**. The report provides recommended practices for stakeholder implementation. The report is supplemented by the PHMSA report, **Building Safe Communities: Pipeline Risk and its Application to Local Development Decisions**. The PIPA Report and an interactive table of the PIPA-recommended practices are available online at [www.PIPA-Info.com](http://www.PIPA-Info.com).

NACo applauds the findings of the PIPA Report. It offers nearly 50 recommended practices for local communities, developers and pipeline operators to use to help reduce the safety risks that can result from the growth of communities near transmission pipelines. The recommendations can help guide land-use planning and development decisions to help protect growing communities and the existing pipeline infrastructure. The recommendations address how communities can gather information about transmission pipelines and how local planners, developers and pipeline operators should communicate during all phases of new community development to understand and minimize pipeline risks. NACo helped identify elected county officials and key county professional staff, including planners, to participate in the PIPA initiative.

This issue brief is being published in support of an agreement NACo signed with PHMSA in 2008 to help build county officials' awareness and capacity to improve transmission pipeline safety, especially through development and implementation of local land use practices. Information in this issue brief is taken directly from the PIPA Report with the purpose of conveying the report's findings and distilling the information specifically important to NACo members, including county elected and appointed officials, planners, emergency managers and other key county staff.



# Background

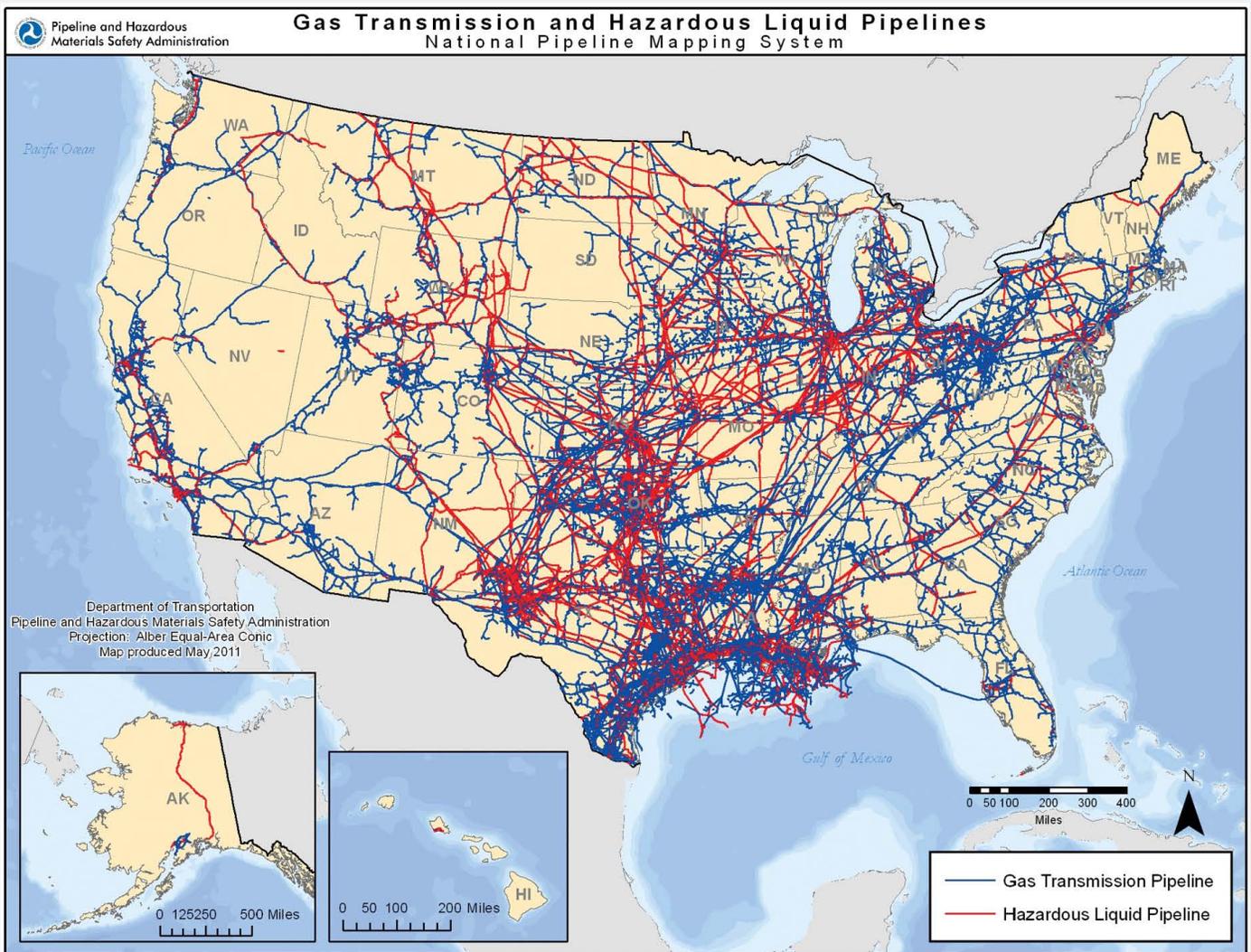
The transmission pipeline system in the United States is considered the most efficient and safest way to transport natural gas and petroleum products across the country. This network of pipelines is an essential element of our nation's energy infrastructure; it serves virtually every community by supplying their commercial, industrial and residential energy needs. Despite a relatively high degree of safety in transporting volatile gases and hazardous liquids, pipelines can pose safety and environmental hazards to local communities.

To understand the possible consequences, one needs to look no further than San Mateo County, Calif. On September 9, 2010, a 30-inch-diameter natural gas pipeline exploded in a fireball, killing seven people and leveling a residential neighborhood in the city of San Bruno, leaving hundreds homeless.

Over the past several decades, many transmission pipelines were constructed in rural areas. This provided relative protection to the pipelines and assured minimal impacts to local communities. More recently, economic growth with expanding housing and commercial development has often resulted in community encroachment on existing pipelines. Economic growth has also prompted a need for even more pipelines in order to meet growing energy demands and changing production areas. The complex national network of transmission pipelines travels through the jurisdictions of many county governments, and counties are often the first to respond when an emergency occurs due to a pipeline rupture. Counties have a responsibility to ensure the safety of their communities by enforcing good land use practices around pipelines.

Why is this important? Urbanization and population growth may bring residents closer to transmission pipeline corridors. Promoting local awareness of pipeline safety and encouraging good land use practices to protect both communities and pipelines ensures coexistence between pipelines and local communities.

**Figure 1: U. S. Network of Hazardous Liquid and Natural Gas Transmission Pipelines**



## Regulating Pipeline Safety

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PHMSA, along with its state partner agencies, regulates the safe construction, testing, operation, and maintenance of transmission pipelines. Federal pipeline safety regulations include targeted regulations for inspecting and managing the integrity of pipeline segments that have the potential to impact populated and developed areas, and regulations requiring pipeline operators to educate the public on pipeline safety.

However, local county and municipal governments (and in some cases state governments), rather than the federal government, are the most common regulators of land use and property development, including land use and development near pipelines. Local governments are increasingly required to make decisions concerning land use planning and development in the vicinity of transmission pipelines. Some local governments have enacted or are developing ordinances to regulate land use and development near transmission pipelines.

## PIPA Report

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As noted, the goal of the Pipelines and Informed Planning Alliance is to reduce risks and improve the safety of affected communities and transmission pipelines through implementation of recommended practices related to risk-informed land use near transmission pipelines.

Approximately 130 representative stakeholder participants undertook the work to develop the PIPA recommended practices. PHMSA plans to continue working with stakeholders to ensure that a sound implementation strategy is developed and that the PIPA recommended practices are communicated to and understood by those who need to adopt them.

The PIPA Report is organized into several important discussion areas including: the definition of key stakeholders, transmission pipelines benefits and risks, general recommended practices, and appendices which include model ordinances and technical information.

## Key Stakeholders

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Key stakeholders identified in the PIPA Report include the following groups that are responsible for key decision making processes that have influence on both the pipeline and the communities that surround the pipeline.

**Local government officials** (typically the town, city, county, borough, or parish legislative body) are responsible for the health, safety, and welfare of the residents and for establishing development regulations and zoning. However, there are many variations in the way local governments and planning processes are structured. Generally detailed recommendations on land use regulations, zoning, and in some cases comprehensive plans, are made

by professional planning staff. In some jurisdictions, planning commissions either endorse or reject those recommendations. The final decision regarding land use planning is generally made by the elected local government legislative body.

**The property developer/owner** is responsible for project planning relating to a parcel of land. This involves gathering all available and necessary information and making decisions affecting a planned development project, such as proposed excavation, construction, or development activity, as well as developing the project plans and getting the necessary approvals and permits to ensure all zoning and construction requirements are met.

**Transmission pipeline operators** are responsible for the safe operation and maintenance of hazardous liquid and/or natural gas transmission pipelines. These pipelines are subject to federal pipeline safety regulations administered either directly by PHMSA or by a state agency. Operator responsibilities include taking actions to avoid pipeline damage or failure. Such actions include: periodic testing and continued maintenance of transmission pipeline facilities, development of emergency plans, performance of leak surveys, continuing surveillance, encroachment mitigation and right-of-way patrolling, and the development and implementation of damage prevention programs and public awareness programs.

**Real estate commissions** are generally established to protect the public interest in real estate brokerage transactions in each state. The commission may have many diverse goals and objectives. For example, one goal may be to assure that licensees are competent and morally fit to act as real estate brokers. Another goal may be to ensure that real estate licensees comply with the real estate practice standards imposed by the real estate license law and commission rules. Finally, a third goal may be to identify and address issues affecting real estate consumers and practitioners.

## Transmission Pipeline Benefits and Risks

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### Benefits

Transmission pipelines provide benefits to the nation's general economy and security by providing efficient, cost effective, reliable, safe and secure delivery of the energy products we rely upon. Everyone in the U.S. uses and benefits from the energy and consumer products produced from natural gas and petroleum made available by pipeline transportation. They also benefit from natural gas and petroleum products used in transportation and transportation-related industries, heating homes, providing electricity, and meeting the energy needs of the U.S. armed services.

In the context of total economic impact, almost all transportation energy in this country comes from petroleum which implies the importance of transmission pipelines to the American economy. Many industries also rely on raw materials that are derived from large volumes of crude oil and natural gas delivered by transmission pipelines. A significant percentage of the economic benefits

from our core national industry sectors, including food products, pharmaceuticals, plastics and resins, industrial organic chemicals, and automotive, would not be possible without oil and natural gas energy and related feed stocks transported by transmission pipelines.

## Risks

Although transmission pipeline incidents are infrequent, they present potential serious consequences that may significantly impact the public. Risks associated with transmission pipelines result from accidental releases of the transported products, or associated explosions or fires, which can impact public safety and the environment. Accidental pipeline releases can result from a variety of causes, including natural disasters, excavation and other outside force damage, internal and external corrosion, mechanical failure, and operator error.

Reducing transmission pipeline risks and enhancing safety is best achieved through proper pipeline operation and maintenance by pipeline operators. The following can also contribute significantly to reducing pipeline risks: Comprehensive and effective public awareness and damage prevention programs (Brookings County, SD Brochure) <http://primis.phmsa.dot.gov/tag/PrjHome.rdm?prj=326>, risk-informed planning, design and construction of industrial, commercial and residential developments near transmission pipelines, and effective regulatory

oversight of operators for compliance with applicable pipeline safety regulations.

Transmission pipeline failures present risks that may impact people and property beyond the edge of pipeline rights-of-way (ROW). To address these risks, some communities have imposed zoning restrictions, including fixed-distance building setbacks for development along transmission pipeline ROW. However, each situation is unique relative to the pipeline characteristics and the areas surrounding the pipeline ROW. Thus, PIPA recommends that implementing a risk-informed approach to land use planning and development and establishing good communication with the transmission pipeline operator are more appropriate than establishing a fixed-distance setback to be applied in all situations. (GIS to Manage Expanding Pipeline System within Dallas / Fort Worth Metro Area.) <http://primis.phmsa.dot.gov/tag/PrjHome.rdm?prj=327>

When weighing the potential risks of hazardous materials releases in areas proposed for development, local governments should obtain all available information and base decisions on a balanced consideration of all risks. This includes consideration of all modes of hazardous materials transportation in the area, including roads, railway transportation, and transmission pipelines. (Underground Pipeline Inventory and Assessment for Incident Management in Montgomery County, VA) <http://primis.phmsa.dot.gov/tag/PrjHome.rdm?prj=328>



Photo (c) Wendy Lyons Sunshine

# Recommended Practices

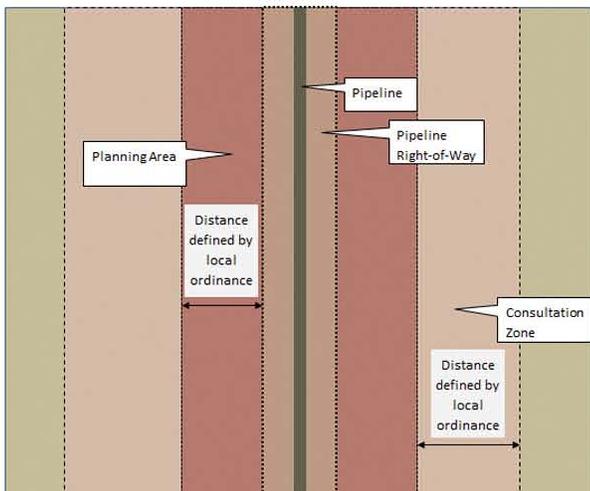
PIPA recommended practices address mapping, land records management, communications, and design and development considerations. Stakeholders in both land use planning/development and transmission pipeline safety are encouraged to become aware of and implement PIPA recommended practices as appropriate.

The recommended practices developed through the PIPA initiative are not mandated by any public or private entity. Furthermore, in some cases implementation of the recommended practices may not be feasible or cost effective. They are intended to provide guidance to pipeline operators, local officials, property owners and developers to provide for the safe use and development of land near transmission pipelines. Some local governments may want to adopt certain practices within their development regulations; others may simply encourage voluntary adoption by their local development community. Both approaches have been used by communities around the country. (Transportation Pipeline Risk Reduction Overlay District in Brookings County, SD) <http://primis.phmsa.dot.gov/tag/PrjHome.rdm?prj=326>

The PIPA recommended practices (Pages 17 - 94 of the PIPA Report) are grouped into two scenarios:

- Baseline recommended practices to be implemented by stakeholders in preparation for future land use and development, and
- New development recommended practices to be implemented by stakeholders when land use and development projects are proposed.

Two of the baseline recommended practices address consultation zones and planning areas. These are important concepts for local governments to put into practice. These two recommended practices are described and illustrated in the graphic below.



## Consultation Zone-BL05 Define Transmission Pipeline Consultation Zone

Local governments should define a consultation zone to provide a mechanism to initiate a dialogue between property developers/owners and operators of nearby transmission pipelines when new land uses and property developments are being planned. Optimally, the consultation zone distance should be measured from the transmission pipeline centerline and should be based on specific pipeline characteristics and local conditions. This dialogue will serve to: (1) protect the transmission pipeline by promoting adequate consideration of the potential safety impacts of the proposed land use or property development on the pipeline; and (2) raise awareness of the potential safety impacts of the transmission pipeline on the proposed land use or development so they can be taken into account during planning and design.

Absent site-specific information, it is suggested that a standard consultation zone distance, on either side of the pipeline centerline, of 660 feet be used for natural gas transmission pipelines. For hazardous liquid pipelines (box), also absent site-specific information, it is suggested that a standard consultation zone distance in a range from 660 to 1,000 feet be considered. Again, it is recommended that communities develop and utilize site-specific distances for consultation zones, based on the unique characteristics for the pipeline and the area surrounding the pipeline. The transmission pipeline operator can be helpful and should be consulted in assisting local governments to better understand the pipeline characteristics when they develop site-specific consultation zone distances.

Hazardous liquid pipelines transport petroleum, petroleum products, or anhydrous ammonia. Petroleum includes crude oil, condensate, natural gasoline, natural gas liquids, and liquefied petroleum gas. Petroleum products are flammable, toxic, or corrosive products obtained from distilling and processing of crude oil, unfinished oils, natural gas liquids, blend stocks and other miscellaneous hydrocarbon compounds. Compressed carbon dioxide is also transported via hazardous liquid pipelines.

## Planning Areas-BL06 Implement New Development Planning Areas around Transmission Pipelines

Local governments should consider implementing “planning areas” to enhance safety when new land use and property development is planned near transmission pipelines. A planning area can provide for the application of additional development regulations, standards, or guidelines to ensure safety when development occurs in close proximity to a transmission pipeline.

Absent site-specific information, it is suggested that a standard planning area distance, on either side of the pipeline centerline, of 660 feet be used for natural gas transmission pipelines. For hazardous liquid pipelines, also absent site-specific information, it is

suggested that a standard planning area distance in a range from 660 to 1,000 feet be considered. The suggested standard distances are intended to apply to common pipeline sizes and pressures and do not take into account the possibility of flow of liquid or heavier than air gases. Thus, in either case it is recommended that communities develop and use site-specific distances for planning areas, based on the unique characteristics for the pipeline and the area surrounding the pipeline. The transmission pipeline operator can be helpful and should be consulted in assisting local governments to better understand the pipeline characteristics when they develop site-specific planning area distances.

## Conclusion

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As transmission pipeline failures may adversely affect the general public, it is important for local governments to make risk-informed decisions regarding land use planning and development in proximity to transmission pipelines. Consequently, local governments should consider the risks, including both likelihood and consequences, of transmission pipeline incidents when making such decisions. They should make full use of available resources and reference the PIPA Report.