

Pipelines and Informed Planning Alliance (PIPA): Land-Use Planning for Schools Near Transmission Lines

**Presented at NSBA's Annual Conference
April 12th, 2010**

Presented by:

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Iowa Utilities Board

PIPA Communications Task Team Co-Chair,

Representing NAPSR

Director, Urbandale Community School District





Why Should School Districts Be Interested in PIPA?





Energy Pipelines

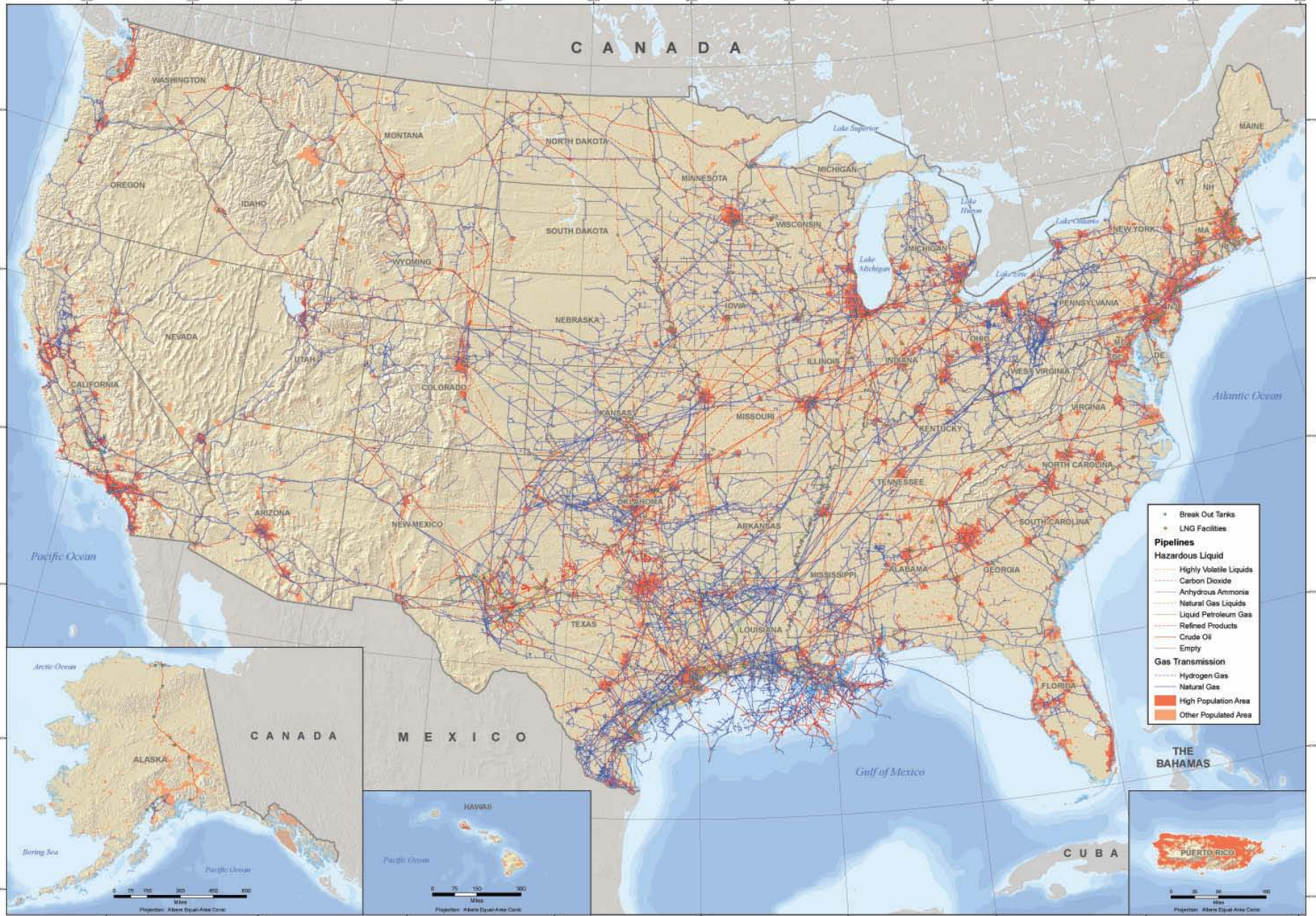
Facts:

- Transmission pipelines that transport natural gas, crude oil and refined petroleum products extend across the U.S.
- Our national economy and security depend on these products.
- Pipelines are one of the safest, most efficient and most reliable means of transporting energy products.
- Transmission pipeline incidents can occur, although the number of serious incidents involving fatalities and injuries remains relatively low.
- PIPA is addressing the concerns of land use planning and development near transmission pipelines.



Gas Transmission and Hazardous Liquid Pipelines in the United States

National Pipeline Mapping System



- Break Out Tanks
 - LNG Facilities
- Pipelines**
- Hazardous Liquid**
- Highly Volatile Liquids
 - Carbon Dioxide
 - Anhydrous Ammonia
 - Natural Gas Liquids
 - Liquid Petroleum Gas
 - Refined Products
 - Crude Oil
 - Empty
- Gas Transmission**
- Hydrogen Gas
 - Natural Gas
- High Population Area
 - Other Populated Area

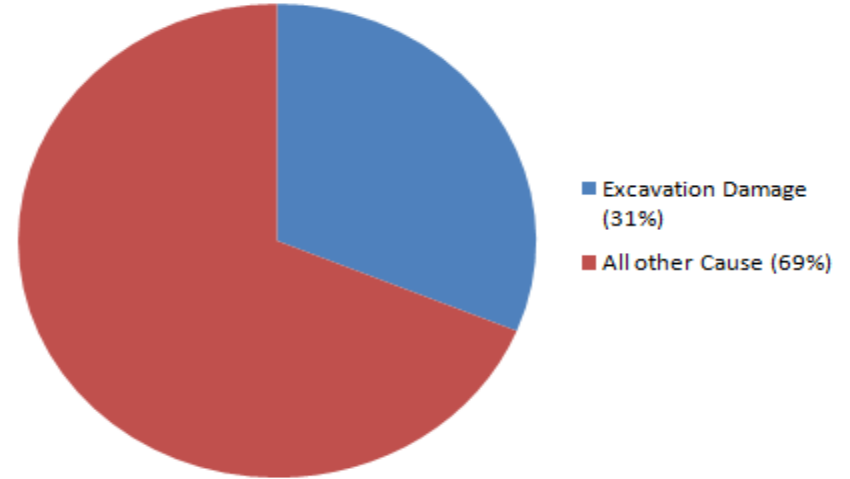
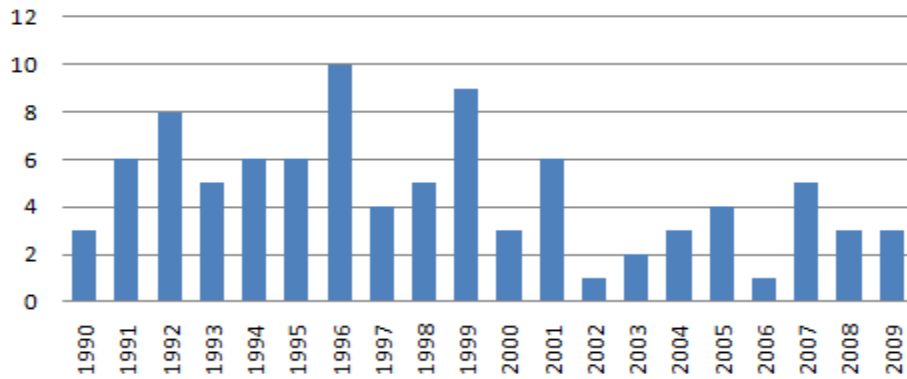
0 125 250 500
Miles

U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Projection: Albers Equal Area Conic
Map Produced February 2009

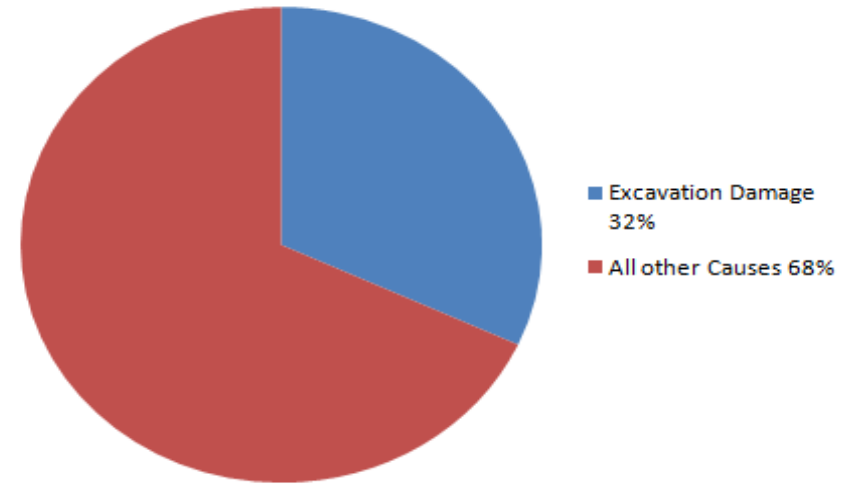
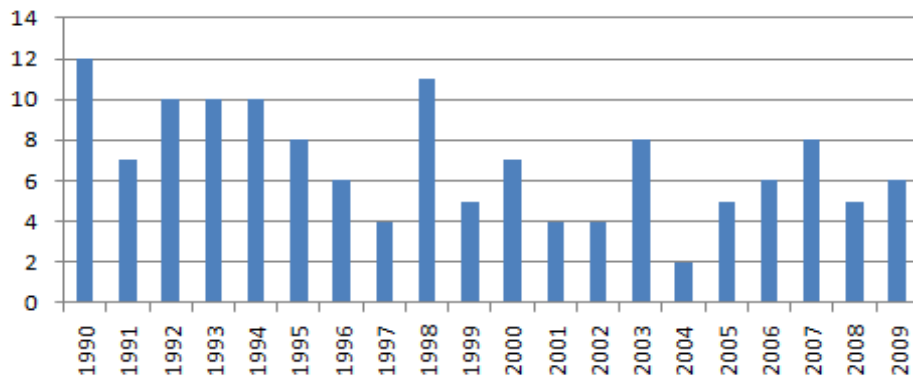


Data Trends

Serious Hazardous Liquid Pipeline Incidents, 1990 - 2009



Serious Gas Transmission Pipeline Incidents, 1990 - 2009





Transmission Pipelines and Land Use Planning

- Land use planning and development can have a direct impact on pipeline safety.
- PIPA goal is to enhance pipeline safety through communication of risks
- PIPA developed recommended practices for land use planning and property development near transmission pipelines
- ~130 stakeholder representatives: NACo, NLC, NAHB, PST, MRSC, APWA, NASFM, NAPSAR, NARUC, FERC, PHMSA, & Industry





Population Encroachment



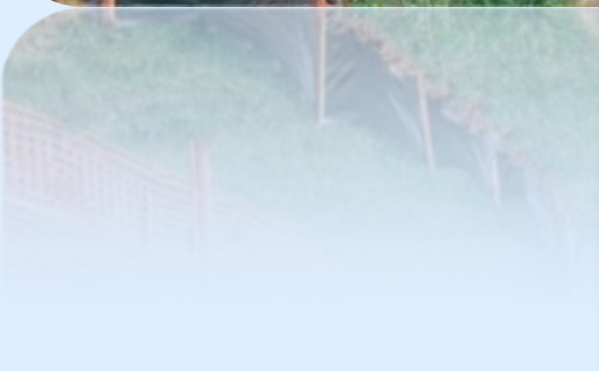
Figure 1 - 1990



Figure 2 - 2002

Illustrated: Growth Along Pipeline in Washington State







Pipelines and Informed Planning Alliance (PIPA)

PIPA recommended practices address:

- Need to educate planning and development stakeholders on transmission pipelines and associated risks
- Enabling these stakeholders to make risk-informed decisions about development along transmission pipeline ROW

A key finding is that communication between local planners and developers, local governments and transmission pipeline operators must be encouraged.





PIPA Task Teams

- Recommended practices were developed by three task teams:
 - Protecting Communities – Recommended practices for land use planning and development on lands **adjacent to** the transmission pipeline ROW
 - Protecting Transmission Pipelines – Recommended practices relating to land use and development activities **on** the pipeline ROW
 - Communication – Recommended practices for communicating information among pipeline safety stakeholders
- PIPA recommended practices were developed using a consensus approach.





PIPA Report

Recommended Practice Scenarios:

- Baseline (BL)
- New Development (ND)

Stakeholder Audiences

- Local Government
- Property Developer / Owner
- Transmission Pipeline Operator
- Real Estate Commission





Examples Of Recommended Practices

		BL07	Understanding the Elements of a Pipeline Easement
		BL08	Land Records Management
		BL09	Documenting and Recording Easement Amendments
		BL10	Implement Communications Plan
		BL11	Effectively Communicate Pipeline Risk and Risk Management Information
ND01	Pipeline Operators and Local Governments Should Provide Information to Property Developers/Owners	BL12	Notification of Right-of-Way Maintenance Activities
ND02	Gather Information for Design near Transmission Pipelines	BL13	Encroachment Prevention and Management
ND03	Property Developer/Owner Review of Acceptability of Proposed Land Use Prior to Design	BL14	Participate in Organizations Pursuing Improved State Damage Prevention Programs
ND04	Property Developer/Owner Coordination of Development Design and Construction with Pipeline Operator	BL15	Enhanced Damage Prevention Practices for Excavation near High Priority Underground Facilities
ND05	<i>n/a – Practice Deleted –</i>	BL16	Halting Dangerous Excavation Activities near Subsurface Installations
ND06	Local Government Requires Consideration of Transmission Pipeline Development Design	BL17	Mapping Abandoned Pipelines
ND07	Define Blanket Easement Agreements When Necessary	BL18	Real Estate Disclosure
ND08	Developing the Pipeline Transmission Right-of-Way		
ND09	Provide Flexibility to Property Developer for Providing Open Space in Close Proximity to the Right-of-Way of Transmission Pipeline		
ND10	Record Transmission Pipeline Easements on Development Plans and Final Plats		





A Few Recommended Practices

BL01 Transmission Pipeline Mapping Data

Practice Statement Local governments responsible for land use and development planning or the issuance of development permits should obtain mapping data for all transmission pipelines within their areas of jurisdiction...

BL04 Consultation Zone Ordinance

Practice Statement Local governments should adopt land development procedures requiring property developers/owners to consult with transmission pipeline operators early in the development process...





A Few Recommended Practices

BL05 Transmission Pipeline Consultation Zone

Practice Statement Local governments should define a “consultation zone” ...for communication between property developers/owners and operators...when new land uses and property developments are being planned.

BL06 New Development Planning Area

Practice Statement Local governments should consider implementing “planning areas” to enhance safety when new land use and property development is planned near transmission pipelines.





A Few Recommended Practices

BL07 Understanding the Elements of a Transmission Pipeline Easement

Practice Statement Property Developers/Owners should have an understanding of the elements of and rights conveyed in a transmission pipeline easement.

BL14 Participate in Organizations Pursuing Improved State Damage Prevention Programs

Practice Statement All pipeline safety stakeholders should participate in the work of organizations seeking to make improvements to state damage prevention programs, especially efforts to reduce exemptions from participation in one-call systems.





A Few Recommended Practices

BL15 Enhanced Damage Prevention Practices for Excavation near High-Priority Subsurface Facilities

Practice Statement Transmission pipeline operators should implement enhanced damage prevention practices within the...right-of-way to ensure that pipeline operators and excavators meet on-site prior to excavation.

BL18 Real Estate Disclosure

Practice Statement As part of all real estate sales contracts, each state should require the disclosure of known transmission pipeline easements on the property.





A Few Recommended Practices

ND02 Gather Information for Design of Property Development near Transmission Pipelines

Practice Statement In designing a proposed property development the property developer/owner should use all reasonable means to obtain information about transmission pipeline facilities in the area of the proposed development

ND06 Local Government Requires Consideration of Transmission Pipeline Facilities in Land Development Design

Practice Statement Whenever development is proposed on property including transmission pipeline facilities, local governments should require that the submitted land development plans address in detail the steps necessary to safely integrate the transmission pipeline into the design of the project.





A Few Recommended Practices

ND10 Record Transmission Pipeline Easements on Development Plans and Final Plats

Practice Statement Local governments should require all recorded development plans and final plats to clearly show the location of transmission pipeline easements and identify the pipeline operators.

ND15 Plan and Locate Vegetation to Prevent Interference with Transmission Pipeline Activities

Practice Statement Trees and other vegetation should be planned and located to reduce the potential of interference with transmission pipeline operations, maintenance, and inspections.





PIPA Report

- Publish as a web-based document
- Printable – entire report or prepared reports of recommended practices, sorted by stakeholder audience taking action
 - Local Government
 - Property Developer/Owner
 - Pipeline Operator
 - Real Estate Commission
- Each recommended practice will have a brief Practice Statement and a Practice Description





PIPA Status

- Consensus reached on majority of recommended practices
- Consultation Zone and Planning Area recommendations near final
- Supplemental paper being prepared comparing transmission pipeline risks with other hazardous materials transportation modes (highway, railway)
- Draft report will be circulated for final review by all PIPA participants when it is prepared.
- PIPA Report hopefully 2nd – 3rd quarter 2010
- Stakeholders are encouraged to begin consideration of the recommended practices as soon as they are published.





Active Communities

- City of Austin, TX, Hazardous Liquid Pipeline Ordinance
- Washington State Model Ordinance
- Municipal Code of Edison, NJ, Township





Complex Risk Assessments Required By One State



Curriculum & Instruction	Testing & Accountability	Professional Development
Finance & Grants	Data & Statistics	Learning Support
		Specialized Programs

Home » Learning Support » Facilities » School Facility

Guidance Protocol School Site Pipeline Risk

California Department of Education

PIPELINE RISK ANALYSIS PROTOCOL

TOTAL INDIVIDUAL RISK (TIR) ESTIMATING AID

To be used in conjunction with

the CDE Guidance Protocol for School

Site Pipeline Risk Analysis

March 2007

CDE provides this template for the convenience of Protocol users as a template. It is the responsibility of the user to ensure that calculations match and are appropriate for the risk analysis being conducted for a particular case. While both CDE and its contractor have sought to make this spreadsheet free of errors there is no expressed or implied warranty to that it is so.

TIR CALCULATIONS - BEGIN ZONE 1 - FRONT PROPERTY LINE

Green cells indicate data entry cells.

Input Data		
Product	natural gas	
Diameter	30	inches
Pressure	400	psig
R0	250	ft
XSEG	RX(1%)	Units
XSEG(LJF)	0	ft
XSEG(RJF)	1178	ft
XSEG(LFF)	0	ft
XSEG(RFF)	5979	ft
XSEG(LEX)	0	ft
XSEG(REX)	0	ft

1. These instruction boxes apply to Worksheets TIR1, 2, 3, and 4.
2. Enter the Input Data indicated for the case under analysis.
3. Enter the XSEG values from Worksheet "XSEG Calculations".
4. In the table below enter the F0 data for the appropriate type of pipeline from the failure frequency data in the Protocol, Chapter 4.
5. Enter a value for the other green cell variables as explained in Chapter 4.

Base and Conditional Probability Calculations

	Base	Leak	Rupture	Exposure
F0	1.2E-04	PC(L) 0.8	PC(R) 0.2	PC(OCC) 0.16
P0	1.2E-04	PC(LIG) 0.3	PC(RIG) 0.45	PC(OUT) 0.25
PAF	1.0	PC(FIG) 0.99	PC(FIG) 0.99	
PA	1.2E-04	PC(JF) 0.98	PC(JF) 0.98	
		PC(FF) 0.01	PC(FF) 0.01	
		PC(EIG) 0.01	PC(EIG) 0.01	
Calculated Values:				
PA(LJF)	0.0E+00	PCI(LJF) 0.233	PCI(RJF) 0.087	
PA(RJF)	2.7E-05	PCI(LFF) 0.002	PCI(RFF) 0.001	
PA(LFF)	0.0E+00	PCI(LEX) 0.002	PCI(REX) 0.001	PC(EXPO) 0.04
PA(RFF)	1.4E-04			
PA(LEX)	0.0E+00			
PA(REX)	0.0E+00			

Print

Stakeholder Communications

Site Pages

- Pipeline Basics
- Safety Standards
- Inspection
- Enforcement
- Incident & Mileage Reports
- Damage Prevention
- Alternative Fuels
- Community Assistance and Technical Services
- Land Use Planning**
- Public Meetings
- Public Awareness
- Liquefied Natural Gas
- Pipeline Library
- Pipeline Glossary
- Links

State-specific information:

Choose One... ▾

We are the Office of Pipeline Safety (OPS) within the U. S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration.

OPS is the primary federal regulatory agency responsible for ensuring the safe, reliable, and environmentally sound operation of America's energy pipelines. We develop and implement pipeline safety regulations at the federal level, and we share regulatory responsibility with the states, with whom we oversee more than two million miles of pipelines.

We are changing the way pipelines are regulated and we have new strategies that are improving the operation of pipelines as well as public and environmental safety.

We are now more mindful than ever of the roles that others play in helping to ensure the safe, sustained flow of energy products across our country. We are actively partnering with state and local officials, first responders, excavators and the general public - among others - to "get the word out" on pipeline safety. All of us, in one way or another, are pipeline safety stakeholders.

On this website you will find information that you can use right now - regardless of your stakeholder interest -- to help ensure pipeline safety in your community. To begin, please select the stakeholder tab above that best describes you or select a topic from the menu on the left.

If you don't have time to browse our website you can follow this link to download a printable [brochure about OPS](#).

Be sure to come back and browse when you have more time.

Following are some recent items of interest related to pipeline safety. Please visit <http://phmsa.dot.gov/pipeline> for additional What's New and event information.



What's New

- PHMSA solicits additional research on alternative fuels and to address pipeline integrity issues with ethanol, biodiesel, biogas and hydrogen (October 2008)
- PHMSA Publishes Final Rule for Increasing Maximum Allowable Operating Pressure on Gas Transmission Pipelines (October 2008)
- PHMSA Issues Guide for Strengthening State Damage Prevention Programs (September 2008)
- PHMSA Advisory Bulletin: Pipeline Safety: Notice to Operators on the Regulatory Status of Direct Sales Pipelines (May 2008)
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- Report - Virginia Pilot Project - Incorporating GPS Technology to Enhance One-Call Damage Prevention - Phase I: Electronic White-lining
- Pipelines and Informed Planning Alliance (PIPA)
- PHMSA Publishes Final Rule to Relax Applicability of Public Awareness Regulations to Certain Gas Distribution Operators (December 2007)
- NTSB Study on Supervisory Control and Data Acquisition Systems in Liquid Pipelines (November 2005)

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<http://primis.phmsa.dot.gov/comm>



Damage Prevention

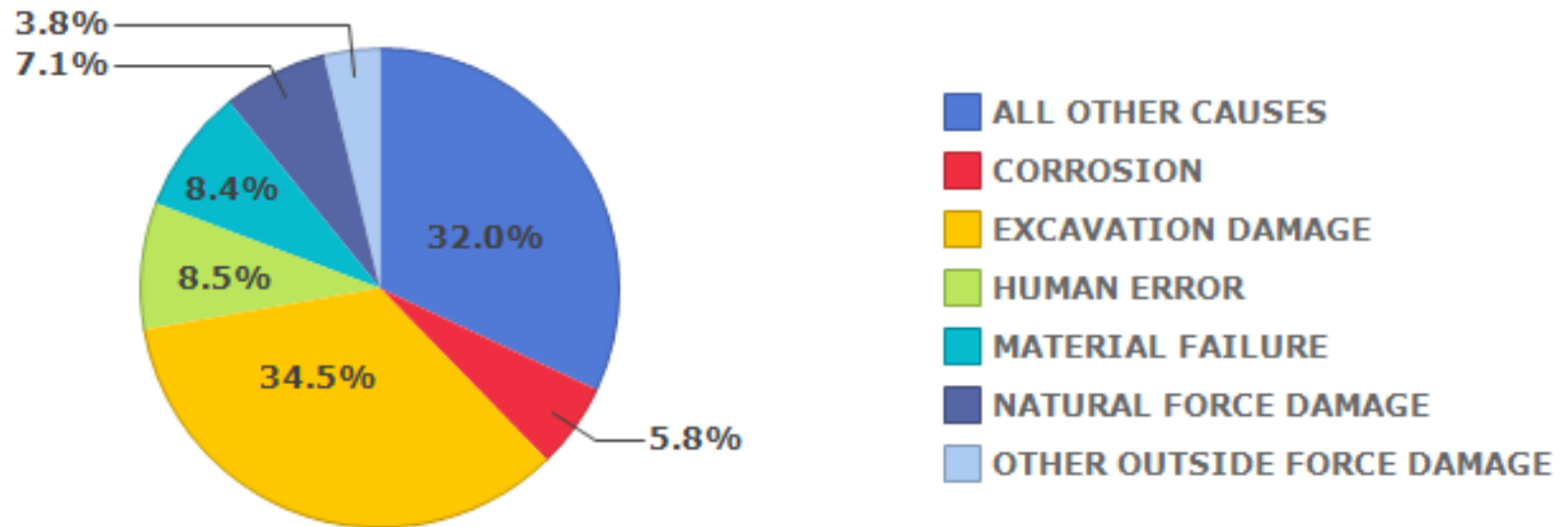
When a pipeline is damaged during excavation, people are almost always nearby





Data Trends: Past 20 Years (All Pipelines)

Serious Incident Cause Breakdown
National, All Pipeline Systems, 1988-2008 YTD



Source: PHMSA Significant Incidents Files October 14, 2008





PHMSA DP Efforts: Laws and Legislation

- Currently working to track state laws, make information available and easily accessible
- Working with states pursuing changes to One Call laws
 - Letters to stakeholders
 - Meeting with stakeholders to provide PHMSA's perspective
 - May not lobby, but can educate





Damage Prevention

- A Shared Responsibility
- Pipelines are critical infrastructure that are essential to our way of life. They also carry hazardous materials that pose risks to people and the environment
- Damage prevention is a multi-faceted issue





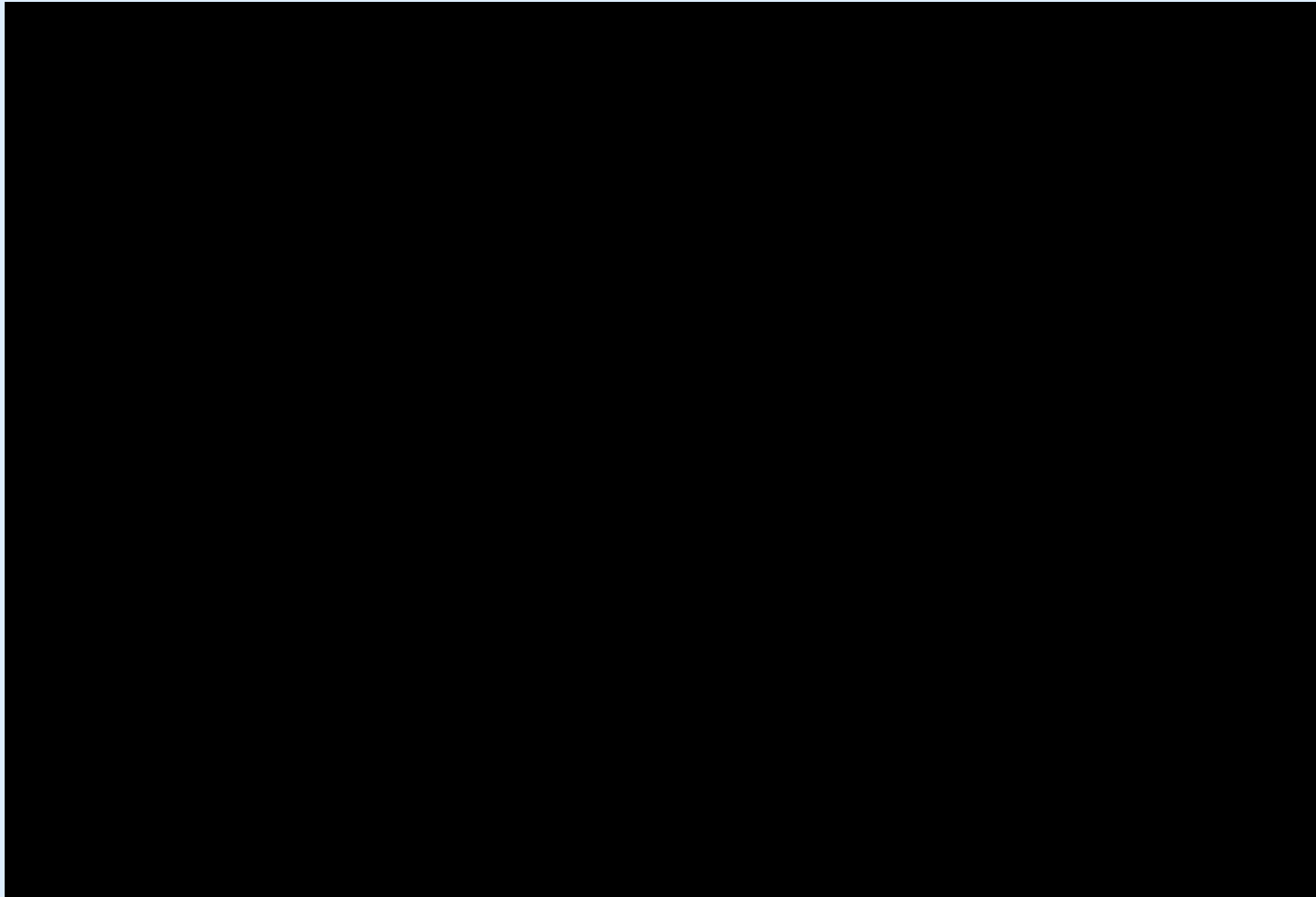
Common Ground Alliance (CGA)

- A member-driven association dedicated to ensuring public safety, environmental protection, and the integrity of services by promoting effective damage prevention practices.
- Purpose is to prevent damage to underground infrastructure by:
 - Fostering a sense of shared responsibility for the protection of underground facilities;
 - Supporting research;
 - Developing and conducting public awareness and education programs;
 - Identifying and disseminating the stakeholder best practices such as those embodied in the Common Ground Study; and,
 - Serving as a clearinghouse for damage data collection, analysis, and dissemination.





811 Pirate Video





Common Ground Alliance (CGA)

The screenshot shows the website for the Common Ground Alliance (CGA). The browser address bar displays <http://www.commongroundalliance.com/>. The website header includes the CGA logo and the tagline "Damage Prevention is a Shared Responsibility." A navigation menu contains links for "About CGA", "Best Practices", "Publications & Resources", "News", "Meetings & Events", and "Committee Work".

On the left side, there is a "CGA Member Login" section with fields for "Username" and "Password", and a "Login" button. Below this is a "Dig Safely" logo with the slogan "Know what's below. Call before you dig." and the text "Dig Safely". At the bottom left, a copyright notice reads: "Copyright © 2005 Common Ground Alliance All Rights Reserved CGA and Dig Safety Campaign are not affiliated with Dig Safe Systems, Inc".

The main content area features a "CGA News" section with several items:

- CGA Monthly Update - March 2010**: The March 2010 Monthly Update provides a recap of the 2010 CGA Annual Meeting as well as information regarding support materials for National Safe Digging Month.
- 2009 DIRT Submission Date Approaching**: The Data Reporting and Evaluation team reminds CGA Stakeholders that the deadline for submitting 2009 DIRT submissions is March 31, 2010.
- CGA Award Winners Announced!**: The Common Ground Alliance (CGA), the nation's leading organization focused on protecting underground utility lines and the safety of people who dig near them, presented four awards to stakeholders during their recent meeting.
- Annual Meeting & Conference 2010 Recap**: Click for a brief recap of the Annual meeting and view a few photos from the event. Look for a complete update in the upcoming newsletter.

Below the news section is a "Spotlight" area featuring a graphic for "Download Best Practices 7.0" and the text: "Best Practices 7.0 is Now Available! The practices have been published in field manual form and are available for immediate shipping."

<http://www.commongroundalliance.com>



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





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<http://primis.phmsa.dot.gov/comm>



Why Public Awareness?



“Those who cannot learn from history are doomed to repeat it.”

George Santayana

“History is a race between education and catastrophe.”

H.G. Wells

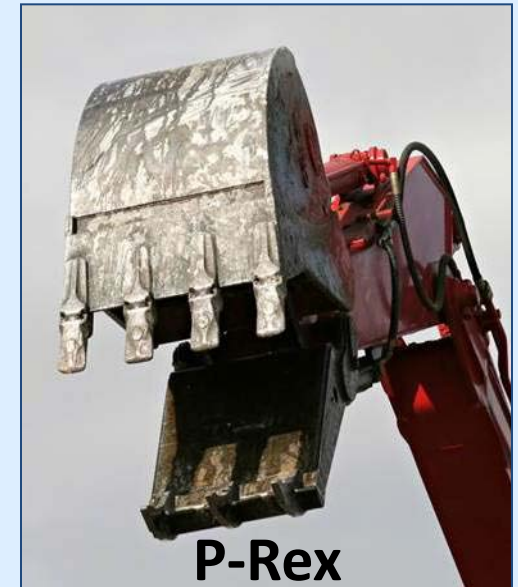




Significant Incidents Caused By Excavation Damage

2000 thru 2009

- Gas Distribution Pipelines
 - 32% of Significant Incidents
 - 19% of Fatalities and 29% Injuries
- Gas Transmission Pipelines
 - 14% of Significant Incidents
 - 38% of Fatalities and 21% Injuries
- Liquid Pipelines
 - 16% of Significant Incidents
 - 32% of Fatalities and 22% Injuries





Why Public Awareness?





Why Public Awareness?

It's the Law!

Pipeline Safety Improvement Act (PSIA) of 2002

Requires owners or operators of a gas or hazardous liquid pipeline facility to carry out a continuing program to educate the public on:

- Use of a One-Call notification system prior to excavation
- Possible hazards associated with unintended releases from pipeline facility
- Physical indications that a release may have occurred
- Steps that should be taken for public safety in the event of a pipeline release
- Procedures to report such an event





Public Awareness

Benefits!

- ✓ Enhanced public safety
- ✓ Decreased third party damage
- ✓ Improved performance
- ✓ Enhanced emergency response coordination
- ✓ Improved relationships with affected public
- ✓ Less resistance to pipeline activities
- ✓ Preservation of Right Of Way from encroachments





**Thank you for your time
and consideration**

Cynthia Munyon

Iowa Utilities Board

Questions?

