



**U. S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration**

Pipelines and Informed Planning Alliance (PIPA)



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Pipelines and Informed Planning Alliance **(PIPA)**

Why PIPA?

- Our Nation's economy is driven by abundant energy.
- Natural gas and liquid transmission pipelines play a crucial role by safely transporting energy products.
- The risk of being injured by a transmission pipeline incident is low; however,
- Development in proximity to pipelines increases the likelihood of pipeline damage and serious incidents.
- Through PIPA, stakeholders are engaging to develop best practices for “risk-informed” property development and land uses along transmission pipeline ROWs.

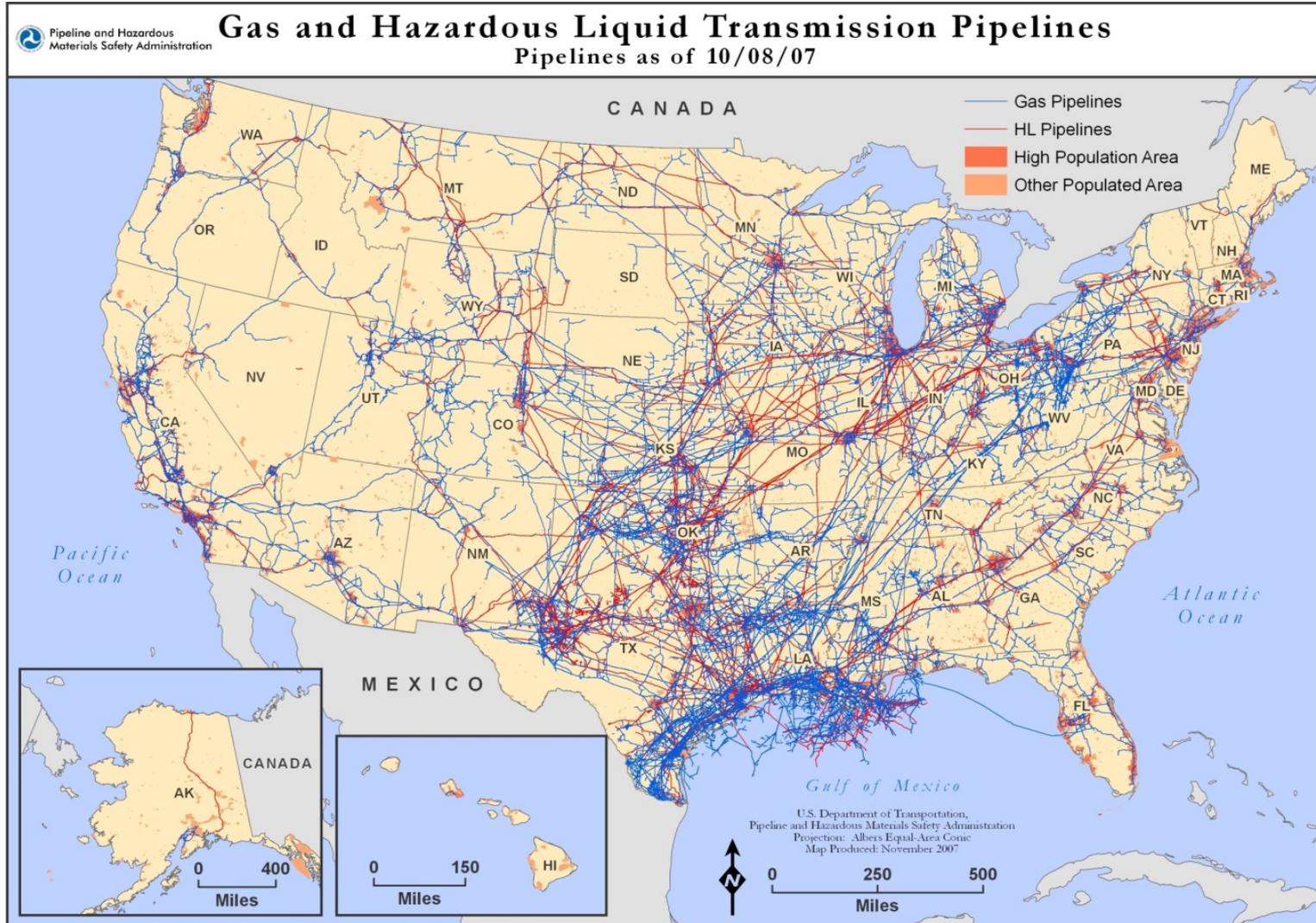


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Pipelines and Informed Planning Alliance (PIPA)

Pipelines
reach
across our
country.





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Our dependency on energy is growing

- Energy from oil and natural gas essential to our daily lives.
 - E.g., Transportation, heating; electricity generation
 - Oil and natural gas supply approximately 2/3 of U.S. energy needs
- Oil and natural gas are produced in distant regions
 - Crude oil must be moved to refineries
 - Refined oil products and natural gas must be moved to consumers
- Pipelines = primary means of transporting oil & natural gas
 - 100% of natural gas and approximately 67% of oil.
- Pipelines are critical to our communities and necessary for basic needs and economic mobility

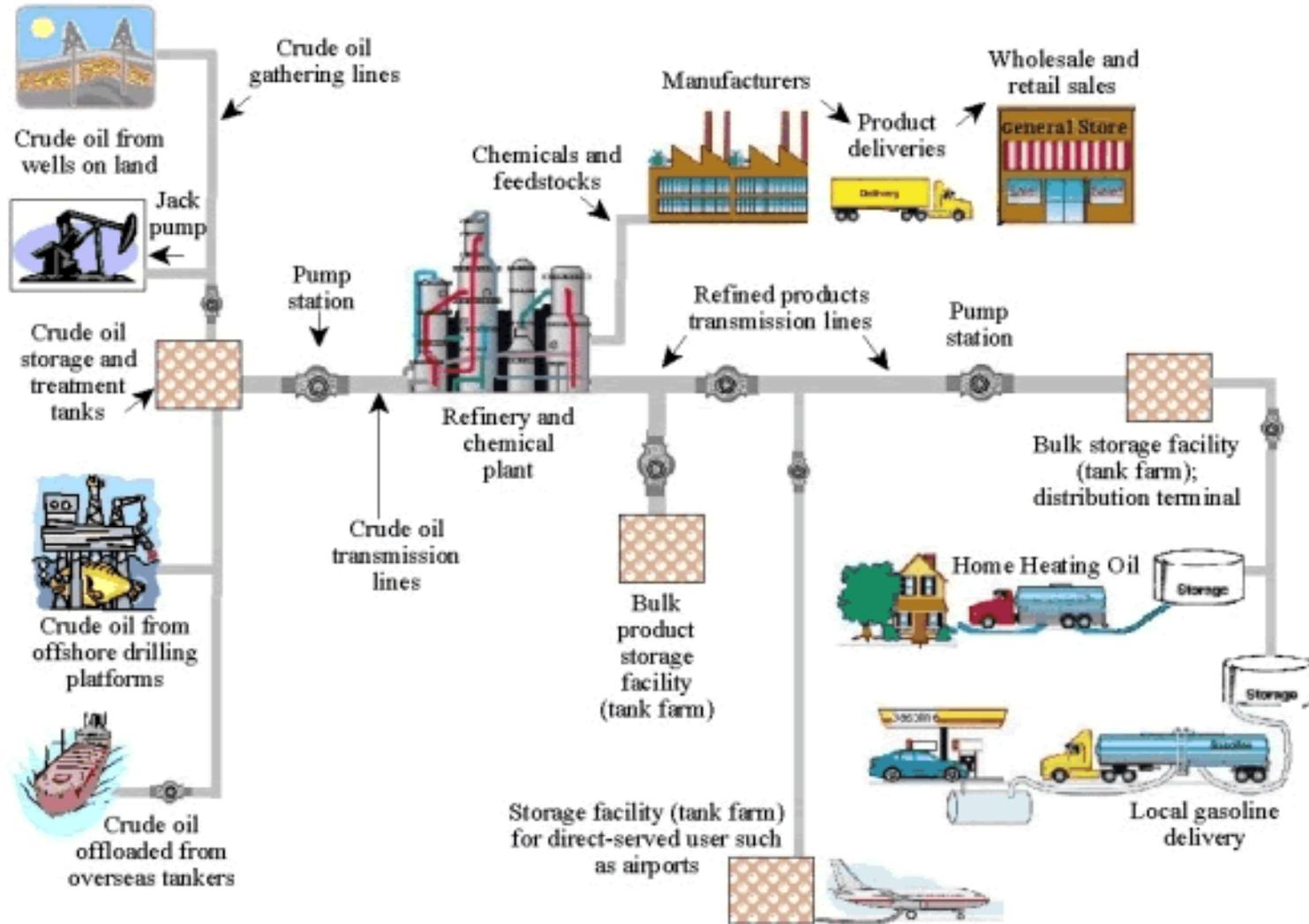


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Pipelines link energy production to end users. (Oil & Refined Products)



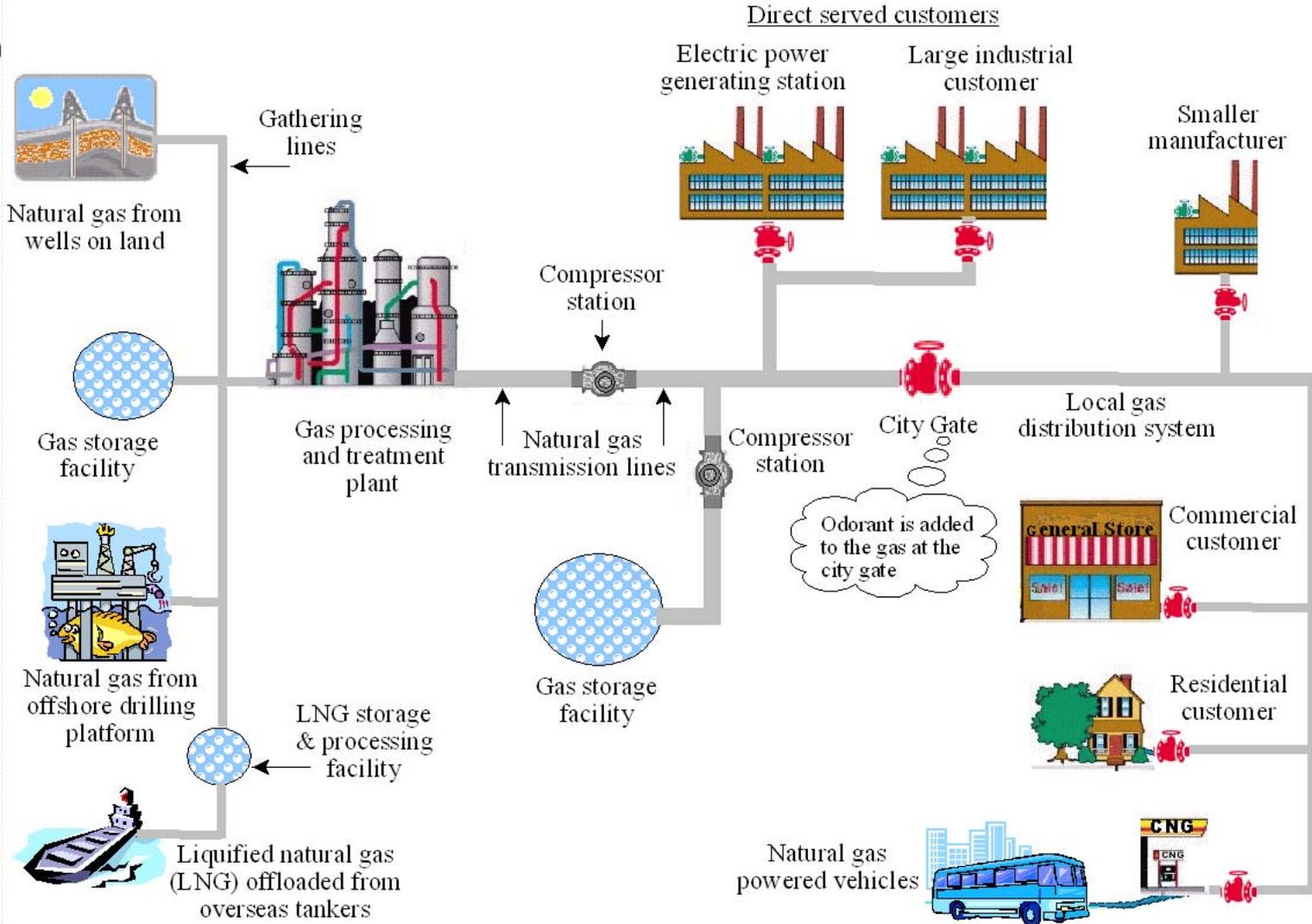


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Pipelines link energy production to end users. (Natural Gas)





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Pipeline Risk increases as population density increases.

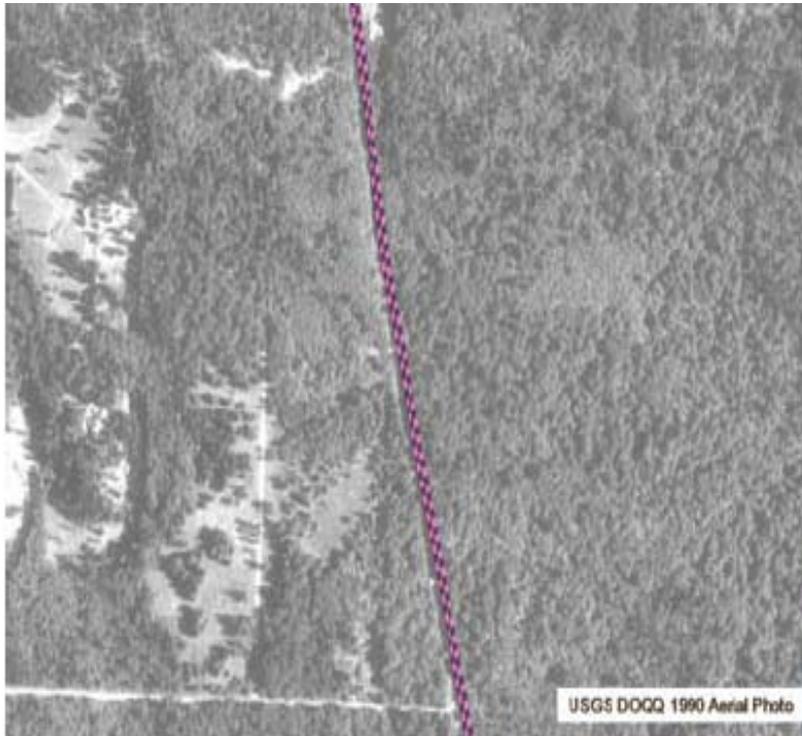


Figure 1 - 1990



Figure 2 - 2002

Growth Along Pipeline in Washington State



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Why is PHMSA leading this effort?

- Past Success in fostering collaborative approaches to address difficult issues
 - Risk Assessment Quality Teams
 - Common Ground Study
- Part of PHMSA's Strategic Plan for 2007-2011
 - "An Enterprise Approach to Achieving Safety"
- Recognition that
 - Collaborative involvement of affected stakeholders provides rich input and acceptable results



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What Has PHMSA Already Done?

- Commissioned TRB study to help frame the issue.
- Continues to support the CGA
- Established the Stakeholder Communications website
- Issued new rules for pipeline operator public awareness programs
- Initiated and supports PIPA



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- January, 2008 – PHMSA hosted the inaugural meeting of the Pipelines and Informed Planning Alliance (PIPA)
- Approximately 130 people attended the meeting and are participating in the PIPA effort.
- PIPA is a partnership of stakeholders whose purpose is to further enhance pipeline safety
- PIPA focus – to develop more detailed guidance for property development in the vicinity of transmission pipelines.
- Completion of the PIPA effort planned for January 2009.



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PIPA Can Get the Job Done!

- Through collaborative efforts PIPA can identify and establish baseline Best Practices aimed at:
 - Protecting Communities
 - Protecting Pipelines
 - Communicating the associated risks and benefits
- PIPA is an opportunity to make a difference



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Through PIPA, stakeholders are engaging each other to develop best practices for property development adjacent to transmission pipelines.

PIPA is:

- Investigating existing best practices and different stakeholder needs and challenges
- Seeking consensus to develop practical guidance on:
 - Land use policies
 - Range of appropriate land uses
 - Setbacks and other measures
- Discussing topics and approaches to include:
 - Model local zoning ordinances and subdivision regulations
 - Model planning policies
 - Model state legislation



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PIPA will produce

- **High-quality, national level risk assessment**
 - Include classes of pipelines, risk profiles and field conditions
- **Simple and easy-to-use decision-guiding tools**
 - Relative to risk levels associated with various aspects of land use planning near pipeline ROW
- **Plan for implementation**
 - Providing help to local communities
- **Plan for long-term communication**
 - Of risk with input from all stakeholders
- **Plan for integrating and refining**
 - Preceding components, on a continuing basis, using actual experience.



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PIPA Task Teams

- Protecting Communities
- Protecting Transmission Pipelines
- Communications



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PIPA Task Team Goals

- **Protecting Communities** –consensus best practices for:
 1. Defining recommended characteristics of land use adjacent to transmission ROW.
 2. Using enhanced building codes for structures adjacent to transmission ROW.
 3. Simple, risk-informed guidance for 1 and 2 above, based on attributes of both the pipeline and the proposed development.
 4. Model Ordinances, Planning Policies, Regulations, or State Legislation incorporating or promoting any of these best practices.



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PIPA Task Team Goals

➤ **Protecting Transmission Pipelines**

1. Consensus best practices for:

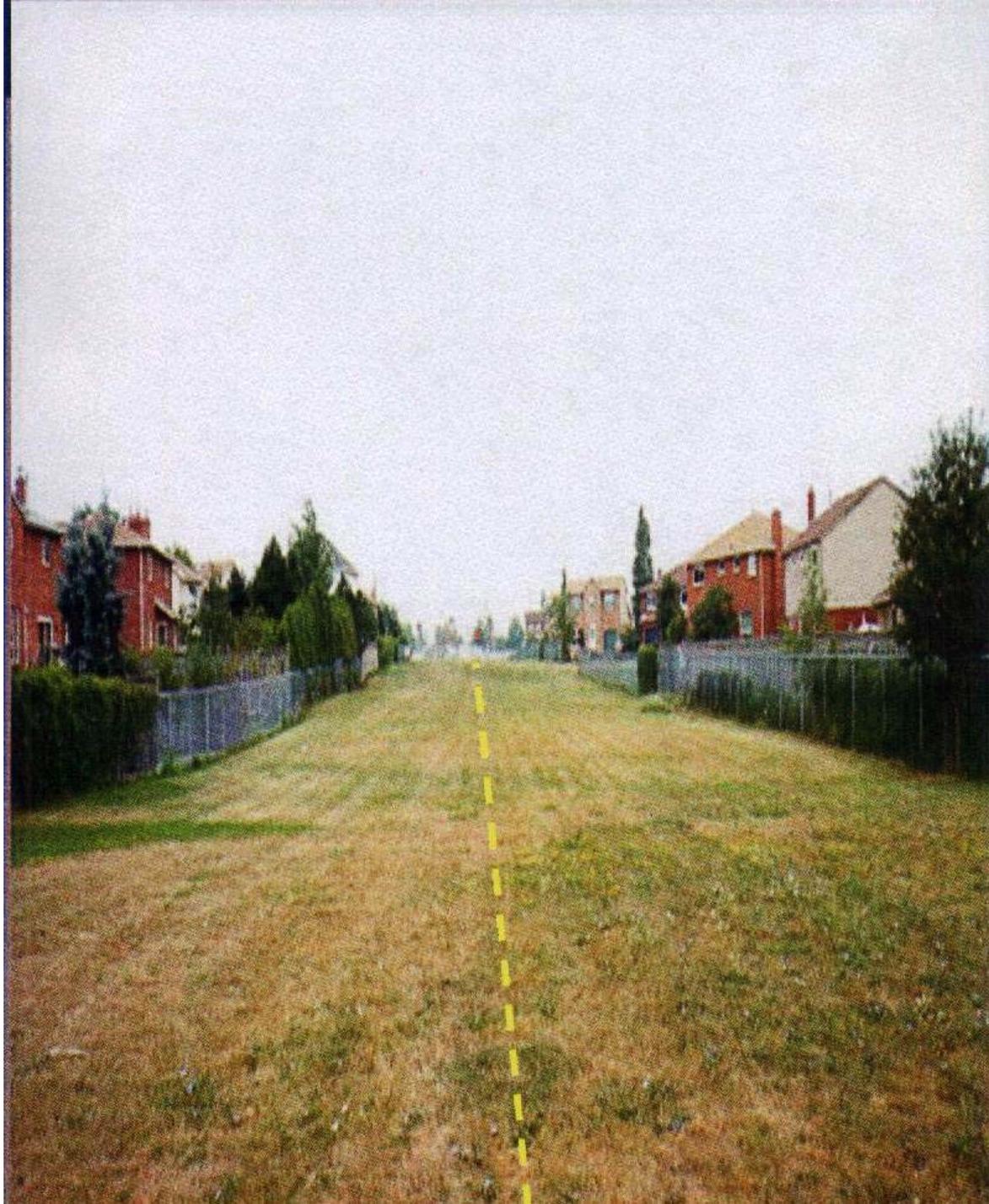
- Incorporating the ROW space in new developments; residential, commercial, and industrial.
- Defining acceptable land owner uses and activities on ROW.
- Ensuring land owners working in the ROW notify operators prior to making changes in land use.
- Guiding the specification, acquisition, development, and maintenance of transmission ROW.
- Managing and recording land documents (easements, encroachment agreements, retention, recording practices).





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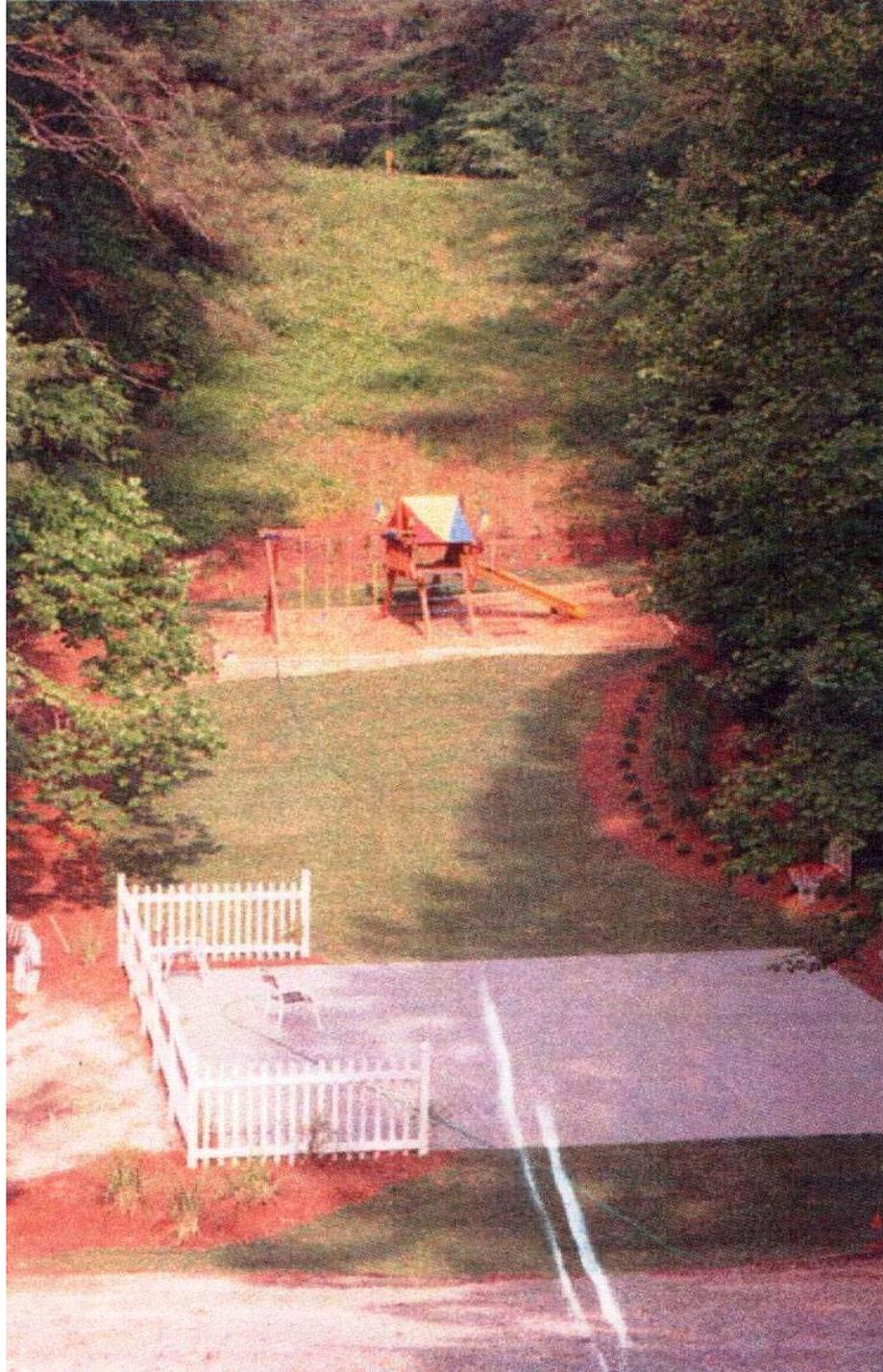
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PIPA Task Team Goals

- **Protecting Transmission Pipelines**
 2. Develop Guidance, Model Ordinances, Planning Policies, Regulations, or State Legislation incorporating or promoting any of these best practices.
 3. Review Common Ground Alliance (CGA) Best Practices and one-call system requirements for gaps in protecting transmission pipelines due to changes in land use in the ROW.

Tabled Issue: Determine if there is consensus on best practices for building setbacks from the edge of transmission pipeline ROW.



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PIPA Task Team Goals

➤ Communications

1. Determine best practices for fostering early communication among stakeholders regarding risk-informed planning to protect communities and pipelines.
2. Determine best practices for communicating acceptable uses and activities on pipeline ROW to land owners and other stakeholders (tenants, excavators, . . .).
3. Determine best practices for real estate disclosure of transmission ROW to potential purchasers of property.
4. Determine barriers to effective communication and best practices for engaging stakeholders.



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PIPA Task Team Goals

➤ Communications

5. Describe benefits of pipeline transportation
6. Describe best practices to effectively communicate risk of pipelines and how risk is managed.
7. Examine possible tie-ins with Common Ground Alliance (CGA) Best Practices
8. Formulate PIPA risk communication plan and design format of final PIPA work product for all Task Teams.



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Original PIPA Goal

- **Develop consensus on best practices for building setbacks from the edge of transmission pipeline ROW**
- **Tabled by Protecting Transmission Pipelines Task Team in January 2008**
- **Steering Committee & Task Team Leadership agreed the issue needs to be discussed in the PIPA Final Report**



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Local Conditions are **Unique**

- **ROW width & position within ROW**
- **Number of pipelines & other facilities in the ROW**
- **Total area being developed and price of real estate**
- **Type of construction equipment for adjacent development**



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Lightning Strike

- **Struck Tree**
- **Vapor Expansion**
- **Stress on Pipe and**
- **Imploded pipe**
- **Broke Weld**
- **Explosion and Fire**





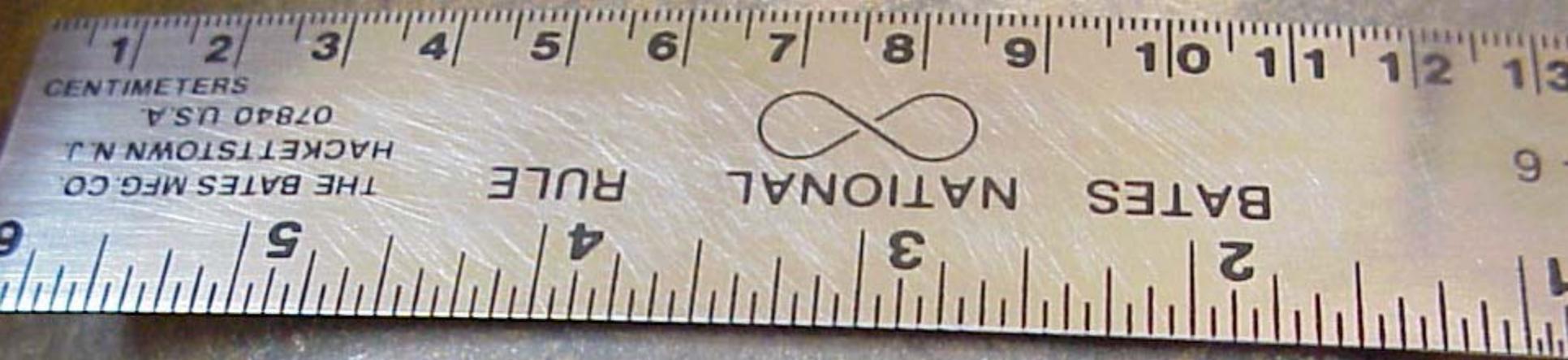


















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- The PIPA approach and focus is to engage a partnership of stakeholders to develop consensus on best practices for property development adjacent to transmission pipelines.
- Experience shows this approach is effective



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Resources Are Available

- Washington State Consultation Process
- National Pipeline Mapping System
- Pipeline Operator Public Awareness Programs
- Reference resources on PHMSA Stakeholder Communications Website
 - Reference Document for Familiarization to Risk-Informed (Land Use) Planning
 - List of References Related to Risk-Informed Land Use Planning



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At least one state requires complex risk assessments



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			



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Some communities already active

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



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For more information regarding PIPA, contact:

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