
# Pipelines and Informed Planning Alliance (PIPA)

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# Pipelines and Informed Planning Alliance (PIPA)

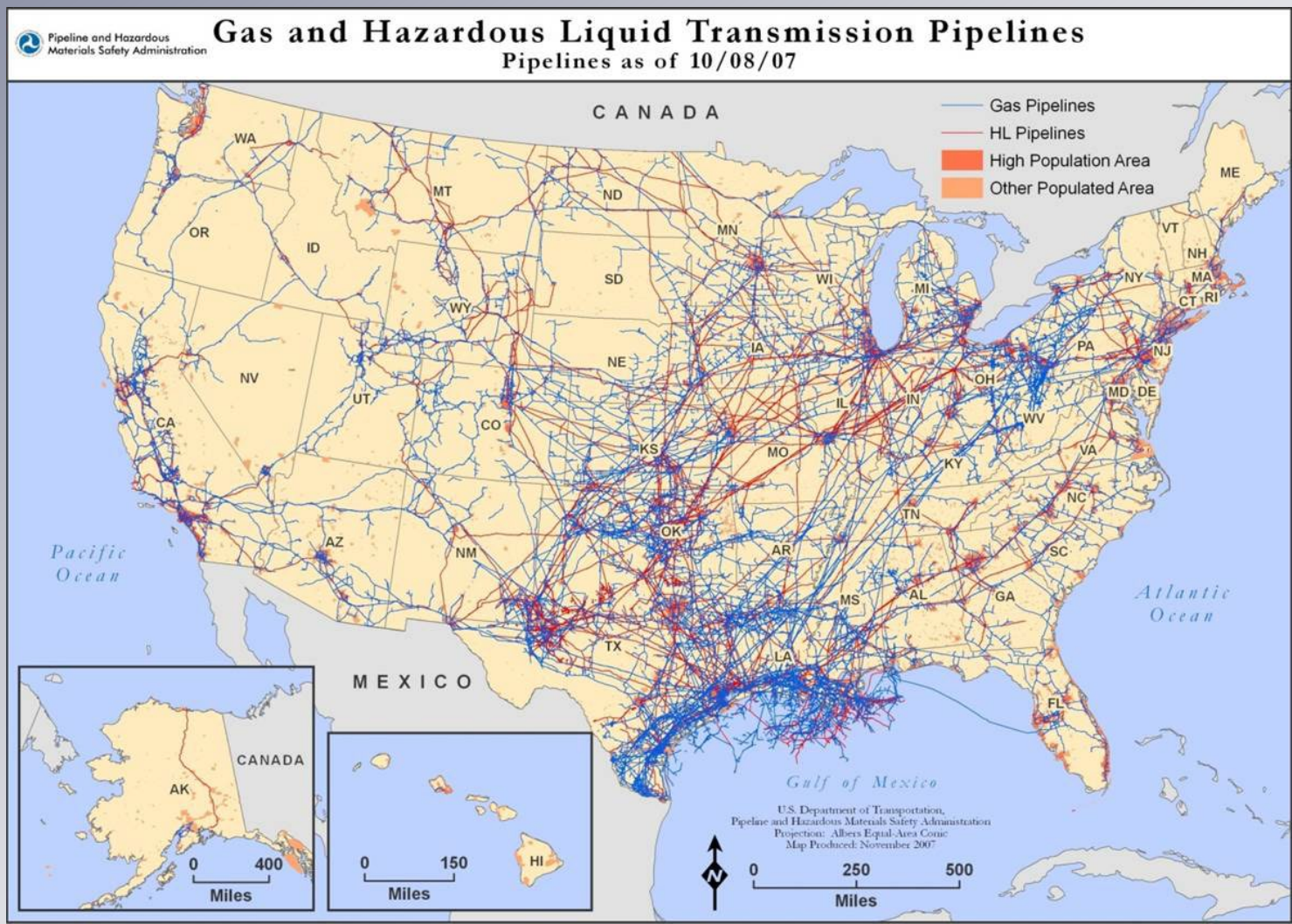
**Why?**

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 safety risks of transmission pipelines are low due to low level of likelihood of pipeline incidents; however,
- Individual pipeline incidents hold the possibility of serious safety and economic consequences.
- Development near transmission pipelines increases the likelihood of pipeline damage and serious incidents.
- Communities need risk-informed guidance related to property development and land use near transmission pipelines to help ensure safety.

# Pipelines and Informed Planning Alliance (PIPA)

Transmission pipelines reach across our country and are located in urban and rural areas.



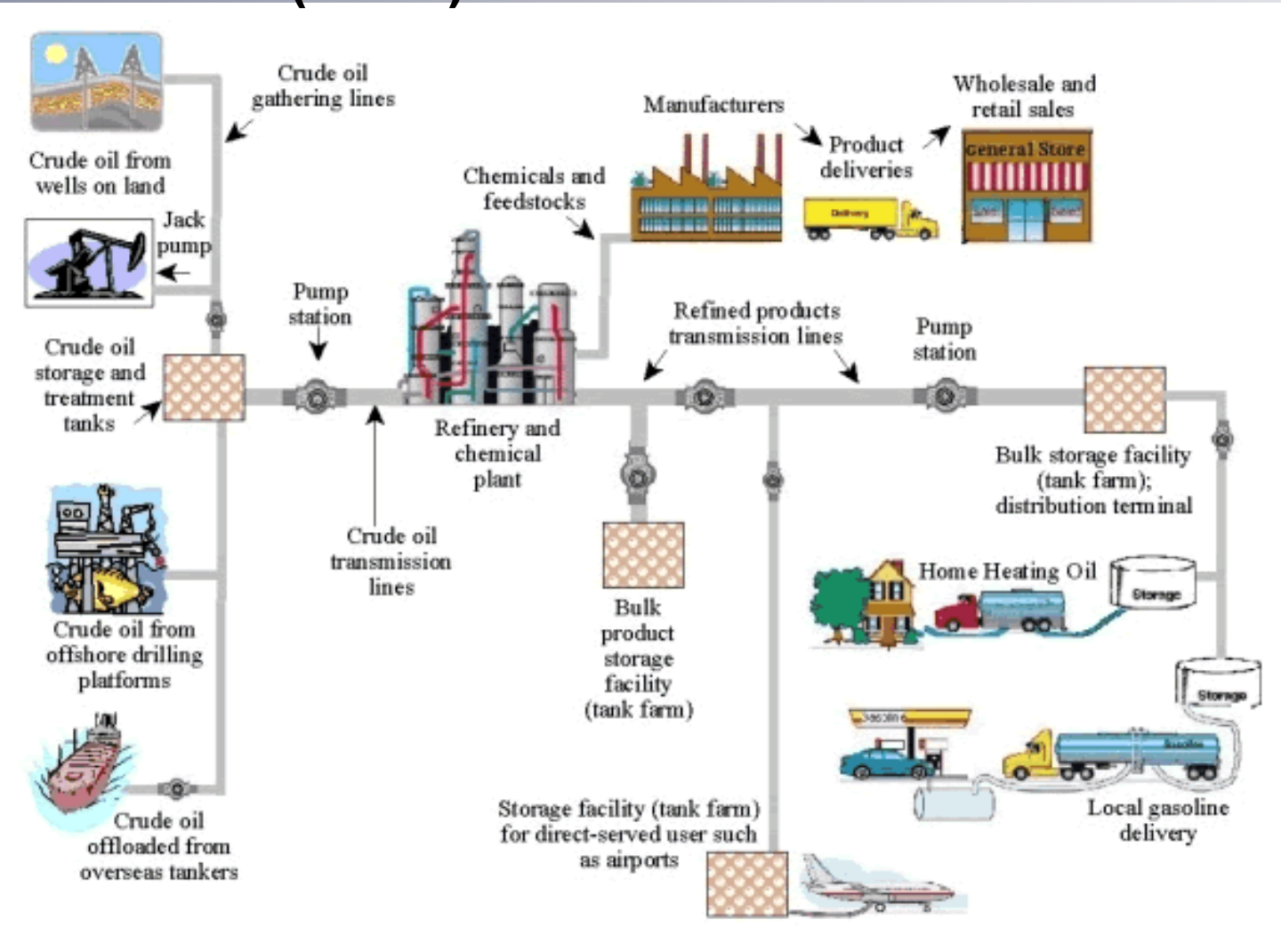

# Pipelines and Informed Planning Alliance (PIPA)

## 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

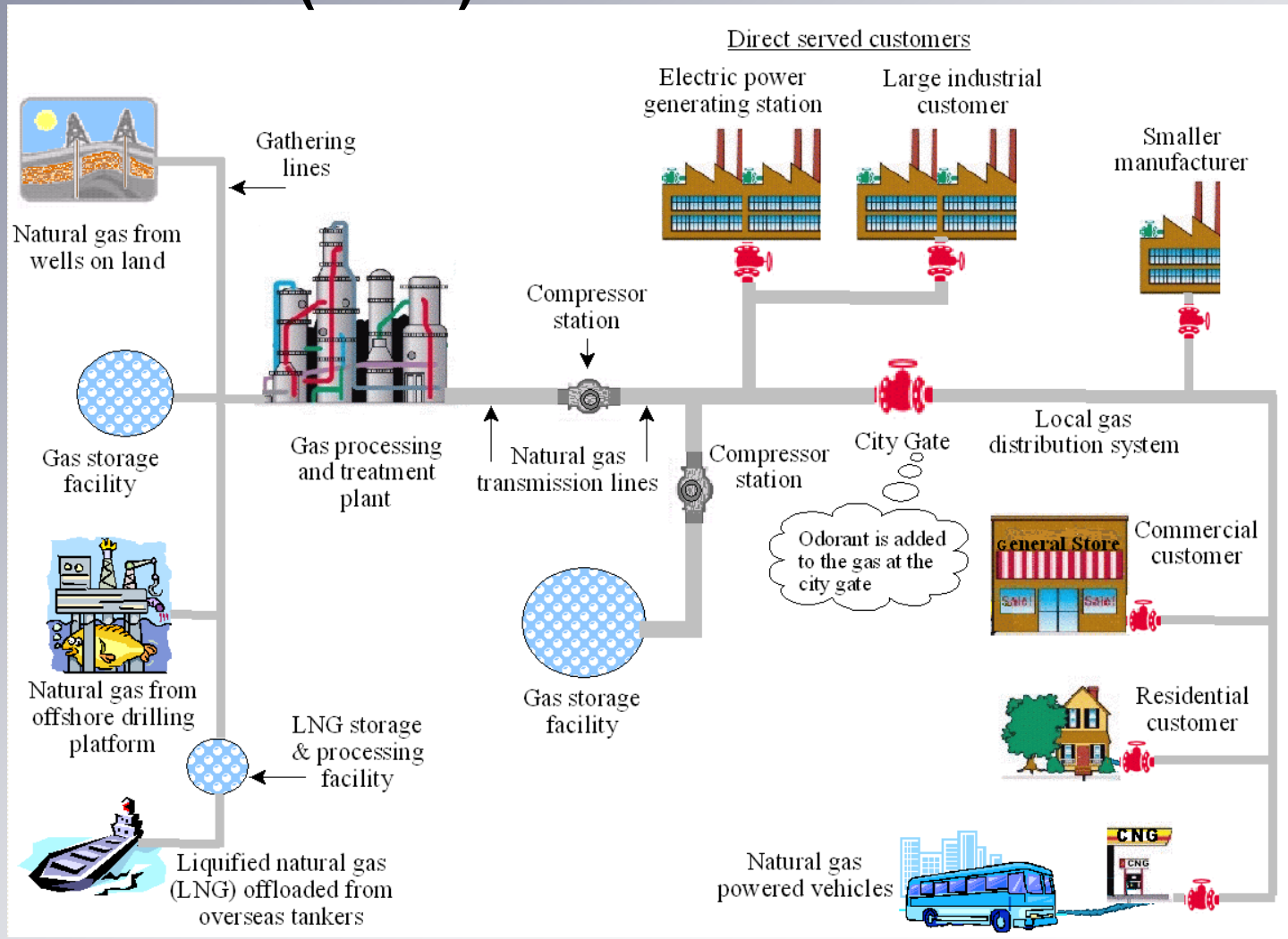
# Pipelines and Informed Planning Alliance (PIPA)

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



# Pipelines and Informed Planning Alliance (PIPA)

Transmission pipelines link energy production to end users. (Natural Gas)



# Transmission pipeline risks increase as population density increases.


Figure 1 - 1990


Figure 2 - 2002

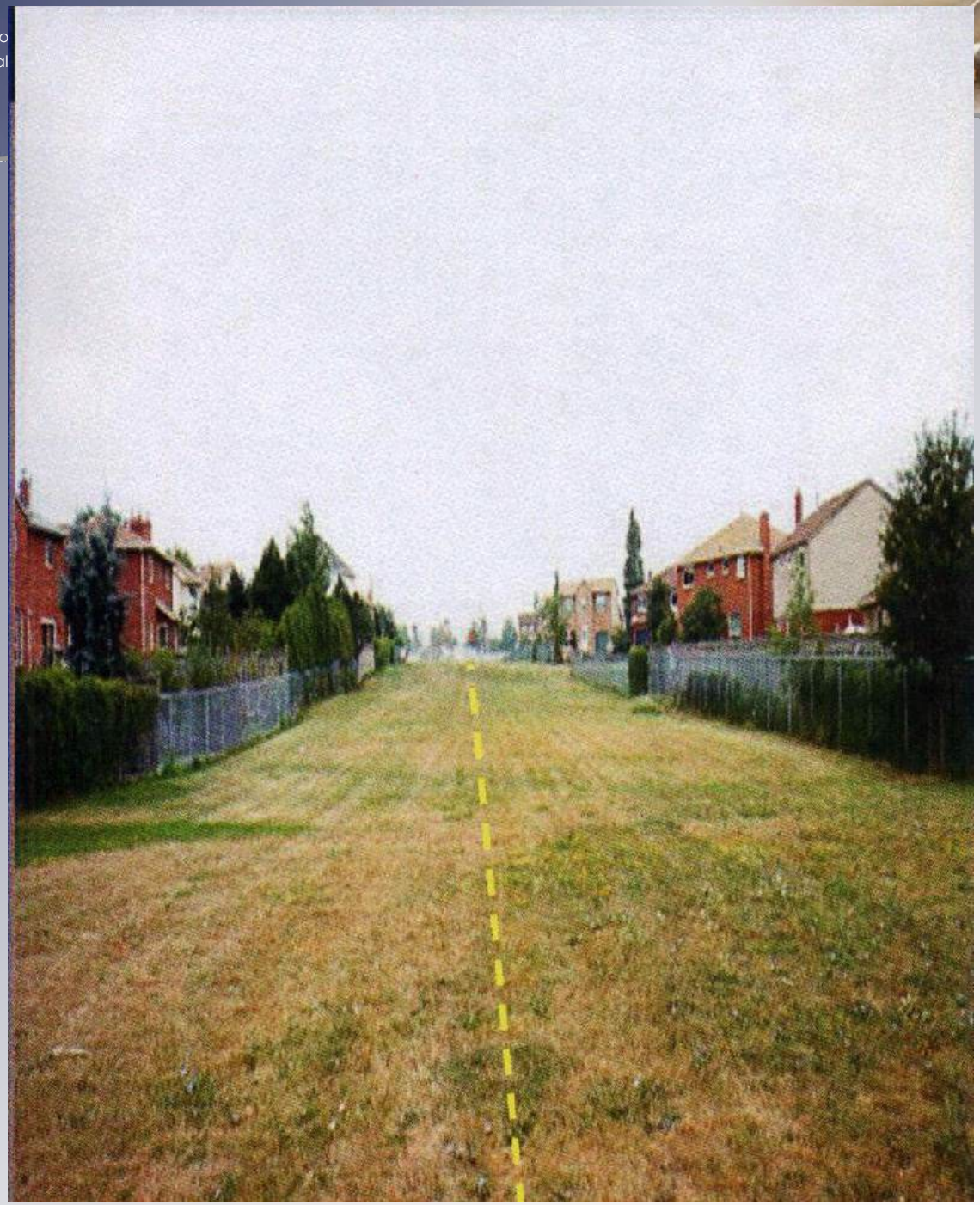
Illustrated: Growth Along Pipeline in Washington State


# Pipeline Safety Improvement Act 2002 (PSIA)

Required DOT and FERC to study land use practices, zoning ordinances, and preservation of environmental resources relative to transmission pipeline ROW and maintenance.


# 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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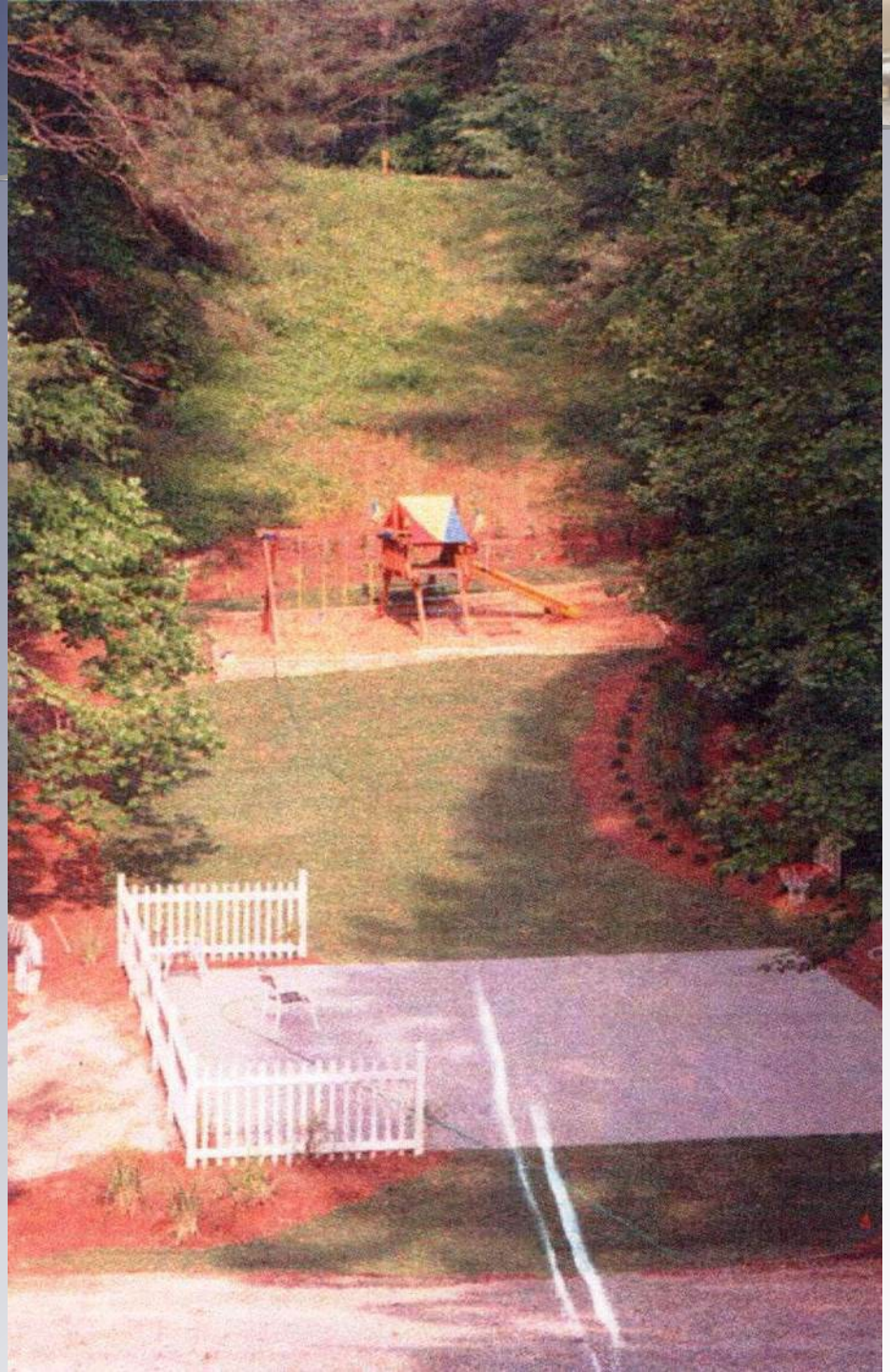


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# Pipeline Safety Improvement Act 2002 (PSIA)

Information from study to be used to:

- Determine effective practices to limit encroachment on transmission pipeline ROW.
- Address and prevent hazards and risks to public, workers, and environment associated with ROW encroachment.
- Raise awareness of the risks and hazards of encroachment.
- Address preservation of environmental resources while maintaining ROW, recognizing pipeline operators' regulatory obligations.


# Pipelines and Informed Planning Alliance (PIPA)

## Study, TRB Special Report 281, September 2004

### Recommendations to PHMSA:

- Develop *risk-informed* land use guidance.
- Involve all stakeholders.
- Include expertise in risk analysis, risk communication, land use management, and developing regulation.
- Ensure process is transparent, independent, and peer reviewed.
- Refine the guidance over time.

### Recommendations to transmission pipeline industry:

- Develop best practices for specification, acquisition, development, and maintenance of transmission pipeline ROW.


# Pipelines and Informed Planning Alliance (PIPA)

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**


# Pipelines and Informed Planning Alliance (PIPA)

## 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**


# Pipelines and Informed Planning Alliance (PIPA)

- **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.**


# Pipelines and Informed Planning Alliance (PIPA)

*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**


# Pipelines and Informed Planning Alliance (PIPA)

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.**


# Pipelines and Informed Planning Alliance (PIPA)

## Organizations *Represented* in PIPA

- Federal Government
- State and Local Government Associations
- Public Advocacy Groups
- Non-Pipeline Industry Associations
- Pipeline Industry Associations


# PIPA Task Teams

Protecting Communities - recommend practices for:

- Defining recommended characteristics of land use adjacent to transmission pipeline ROW.
- Using enhanced building codes for structures adjacent to transmission pipeline ROW.
- Developing risk-informed guidance for above, based on attributes of transmission pipelines and proposed developments.
- Developing model ordinances, planning policies, regulations, or state legislation incorporating or promoting any of these best practices.


# PIPA Task Teams

Protecting Transmission Pipelines – recommend practices for:

- Incorporating transmission pipeline 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 transmission pipeline operators prior to making changes in land use.
- Guiding transmission pipeline operator specification, acquisition, development, and maintenance of ROW.
- Managing and recording land documents (easements, encroachment agreements, retention, recording practices).


# PIPA Task Teams

Protecting Transmission Pipelines (cont'd)

- Develop guidance, model ordinances, planning policies, regulations, or state legislation incorporating or promoting any of these best practices.
- 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.

- Additional issue discussed among PC and PTP task teams – development and use of building setbacks
  - General agreement that implementation of PIPA practices is best over use of setbacks


# PIPA Task Teams

## Communications

- Determine best practices for fostering early communication among stakeholders.
- Determine best practices for communicating acceptable uses and activities on transmission pipeline ROW.
- Determine best practices for real estate disclosure of transmission pipeline ROW.
- Determine barriers to effective communication and best practices for engaging stakeholders.


# PIPA Task Teams

## Communications

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


# PIPA Task Teams

- Followed a discussion and consensus agreement process.
- Pursued respective goals separately via series of telephone and web-assisted conferences.
- Supported by a mid-point face-to-face meeting to discuss cross-team issues and ensure initiative was on track.
- Draft final report issued November 2008 to participating stakeholder organizations for review.


# Pipelines and Informed Planning Alliance (PIPA)

## PIPA Report

- Participating stakeholder organizations given approximately 1½ months to review draft final report.
- Resulting comments consolidated and associated with specific report elements for additional review and consensus by task teams.
- Task teams reviewed revised practices and additional comments in series of Live Meeting teleconferences.
- Second level consensus required on revisions.
- Difficult issues addressed in additional meetings of stakeholder representatives.
- Some recommended practices were removed.


# Pipelines and Informed Planning Alliance (PIPA)

## PIPA Report

- Final PIPA Report will be integrated into an interactive application on PHMSA's Stakeholder Communications website.
- Stakeholder's will be encouraged to refer to website for land use planning guidance and to link to it from their own websites.
- Use of website will enhance ability to accommodate and make available future revisions.

# Pipelines and Informed Planning Alliance (PIPA)

Other 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


# Pipelines and Informed Planning Alliance (PIPA)

Some communities already active

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


# Pipelines and Informed Planning Alliance (PIPA)

## At least one state requires complex risk assessments

California Department of EDUCATION

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 pf 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 | | | | | | |


# Pipelines and Informed Planning Alliance (PIPA)

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