Land-Use Planning Near Transmission Pipelines
Improving Pipeline Safety Across Generations
Limiting the effects of land development near pipelines...
Increased Likelihood of Excavation Damage; Interference with Emergency Response and Pipeline O&M
Increased Consequences of Failure
How can a government impact pipeline safety...
Through implementation of PIPA recommended practices

- Hazard Awareness Practices
- Land Planning Practices
- Damage Prevention Practices

<table>
<thead>
<tr>
<th>Planning</th>
<th>Legislature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoning</td>
<td>Fire</td>
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<tr>
<td>Permitting</td>
<td>Police</td>
</tr>
<tr>
<td>Public Works</td>
<td>Real estate commission</td>
</tr>
</tbody>
</table>
Hazard Awareness Practices

- Hazard Awareness
  - Pipelines Maps
  - Land Records
  - Real estate disclosure
BL01 Obtain Transmission Pipeline Mapping Data

National Pipeline Mapping System (NPMS)

www.npms.phmsa.dot.gov
• ND07 Define Blanket Easement Agreements When Necessary

• ND10 Record Transmission Pipeline Easements on Development Plans and Final Plats
BL18 Disclose Transmission Pipeline Easements in Real Estate Transactions
Land Planning Practices

Consultation zone and planning area (overlay district)

Communicate early to influence design and location of structures relative to the pipeline to: (ND11-23)

- Reduce Pipeline Risk (separation & orientation)
- Prevent Environmental Contamination (migration)
- Prevent Damage to the Pipeline
- Consider Pipeline Noise and Odor
- Prevent Interference with Pipeline O&M
- Consider Ability to Evacuate & Site Emergency Response Planning
BL05 – Consultation Zone

Local governments should define a “consultation zone” to provide a mechanism for communication between property developers/owners and operators of nearby transmission pipelines when new land uses and property developments are being planned.

Absent site-specific information:
- Natural Gas Pipelines = 660’-1,000’
- Hazardous Liquid Pipelines = 1,000’-1,500’
ND11 – Placing New Parking Lots

Reduce Transmission Pipeline Risk through Design and Location of New Parking Lots and Parking Structures
Consider Site Emergency Response Plans in Land Use Development

- Access to shutoff valves
- Access for emergency response personnel/equipment
- Location/capacity of water supply/fire hydrants
- Potential ICS, triage, and staging areas

...review of existing ROW can illustrate the benefit of land planning practices...
ND 22 Reduce Transmission Pipeline Risk through Design and Location of New Places of Mass Public Assembly

…Evacuation routes should...have a safe means of egress with exits located where they would not be made inaccessible by the impacts of a pipeline incident...
Reduce Transmission Pipeline Risk in New Development for Residential, Mixed-Use, and Commercial Land Use

...cul-de-sac streets should not be designed crossing a transmission pipeline as the only route of ingress or egress...
Prevent and Manage Right-of-Way Encroachment

Transmission pipeline operators should communicate in a documented and timely manner with property developers/owners to prevent or rectify unacceptable encroachments or inappropriate human activity within the transmission pipeline right-of-way.
Damage Prevention RPs

**Damage Prevention - Recommended practices to reduce the risk of damage to the pipeline during or prior to new development construction**

BL14 Participate to Improve State Excavation Damage Prevention Programs

BL16 Halt Dangerous Excavation Activities near Transmission Pipelines

BL24 Temporary Markers for Construction

ND25 Contact Transmission Pipeline Operator Prior to Excavating or Blasting
Transmission pipeline operators should have procedures and established contacts with local enforcement personnel in order to act appropriately to halt dangerous excavation activities that may damage their pipelines and potentially cause an immediate threat to life or property.
Install Temporary Markers on Edge of Transmission Pipeline Right-of-Way Prior to Construction Adjacent to Right-of-Way
Communication Team & Implementation Plan Goal

Goal -
Engage local governments to promote their awareness of and support their implementation of the PIPA recommended practices for land use and development planning near transmission pipelines.

<table>
<thead>
<tr>
<th>Name</th>
<th>Representing</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cynthia Munyon*</td>
<td>NAPS</td>
<td>Iowa Utilities Board</td>
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<tr>
<td>Steve Fischer</td>
<td>PHMS</td>
<td>PHMSA</td>
</tr>
<tr>
<td>Julie Halliday*</td>
<td>PHMS</td>
<td>PHMSA</td>
</tr>
<tr>
<td>James Davenport</td>
<td>NACo</td>
<td>National Association of Counties</td>
</tr>
<tr>
<td>Julia Pulidindi</td>
<td>NLC</td>
<td>National League of Cities</td>
</tr>
<tr>
<td>Chuck Lesniak</td>
<td>NLC</td>
<td>City of Austin, TX</td>
</tr>
<tr>
<td>Debbie Bassert</td>
<td>NAHB</td>
<td>National Association of Home Builders</td>
</tr>
<tr>
<td>Erika Lee</td>
<td>CGA</td>
<td>Common Ground Alliance</td>
</tr>
<tr>
<td>Rebecca Craven</td>
<td>PST</td>
<td>Pipeline Safety Trust</td>
</tr>
<tr>
<td>Carl Weimer</td>
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</tr>
<tr>
<td>Gina Greenslate</td>
<td>API/AOPL</td>
<td>Panhandle Energy</td>
</tr>
<tr>
<td>Terri Larson</td>
<td>API/AOPL</td>
<td>Enbridge Energy</td>
</tr>
<tr>
<td>Chuck Kanoy</td>
<td>AGA</td>
<td>Vectren</td>
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<tr>
<td>Phil Bennett</td>
<td>AGA</td>
<td>American Gas Association</td>
</tr>
<tr>
<td>Lydia Meiqs</td>
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<tr>
<td>Susan Waller</td>
<td>INGAA</td>
<td>Spectra Energy</td>
</tr>
<tr>
<td>Andrea Grover</td>
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</tr>
<tr>
<td>Dwayne Teschendorf</td>
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<tr>
<td>Greg Ford</td>
<td>INGAA</td>
<td>Williams Gas Pipeline</td>
</tr>
<tr>
<td>Amber Pappas</td>
<td>RCP</td>
<td>RCP</td>
</tr>
<tr>
<td>Herb Wilhite</td>
<td>Cycla</td>
<td>Cycla</td>
</tr>
</tbody>
</table>

* Co-Leaders
Initiatives to Promote Local Government Consideration of Practices to Enhance Pipeline Safety

- Enhanced State and Local Hazard Mitigation Plans for Pipelines
- PIPA Evaluation Tool for Local Governments
Develop Hazard Mitigation Plan Resource for Pipelines

“All Hazards, All Phases, All Impacts, All Stakeholders”

Hazard Mitigation is the act of identifying the natural and manmade hazards that may bring harm to a community, and then taking action to reduce or eliminate the loss of life and property damage these hazards can inflict.
3.3 Hazard Analysis – Technological Hazards

Pipeline - Hazard to be Evaluated

Pipeline - Critical Infrastructure to be Protected

Washtenaw HM Plan

7. Earthquakes

County Ranking: #18

Description: Earthquakes are a sudden movement in the earth’s surface as a result of an energy release from the earth’s crust. There are two potential sources of earthquake activity for Washtenaw County. The Grenville Front is a regional fault zone and crosses under the County from the southeast to northeast. The Grenville Front is dormant and is therefore not a major concern. The New Madrid Fault, located

Pipeline - Hazard to be Evaluated

Washtenaw County HM Plan

Washtenaw County - 10

15. Petroleum and Natural Gas Pipeline Accidents

County Ranking: #10

Description: Pipeline accidents are an uncontrolled release of petroleum, natural gas, or the poisonous by-product of hydrogen sulfide, from a pipeline (MSP/EMD). There are several major gas pipelines and petroleum lines running through Washtenaw County.

Hazard Assessment: Of the 90 investigations of incidents performed by the Michigan Public Service Commission (MPSC) since 1996, at least 50% have resulted in injuries, death or significant property damage. In addition, these types of incidents are increasing due to the increasing age of the pipelines and the prevalence of construction activities (MSP/EMD). This hazard therefore received an intermediate ranking given the frequency of past occurrences, but also taking into consideration the likelihood of future occurrences.
To reduce risk to public safety posed by natural gas transmission lines, local governments rely on zoning ordinances and control of easements. To better understand issues related to land use planning, PHMSA, in conjunction with the Federal Energy Regulatory Commission (FERC), sponsored a comprehensive study of land use practices, zoning ordinances, and preservation of environmental resources on transmission pipeline rights-of-way. In an October 2004 report, the Transportation Research Board (TRB) recommended that PHMSA “develop risk-informed land use guidance for application by stakeholders.” In response, the Pipelines and Informed Planning Alliance (PIPA), representing a wide spectrum of stakeholders, including the real estate development industry, government at all levels, the pipeline industry, and the public, is working to develop risk-informed land use practices related to protecting communities and pipelines. The PIPA initiative began in January 2008 and has resulted in several recommended practices related to risk-informed land use planning near transmission pipelines. The PIPA report is expected in late 2010.

Map 8.A: California Natural Gas Pipelines

- Pacific Gas & Electric
- Southern California Gas
- San Diego Gas & Electric
- All Others

Hazard Mitigation Planning Process

1. **Hazard Identification** - Describe the hazards

2. **Vulnerability Assessment** - Estimate the impacts the hazards could cause

3. **Capability Assessment** - Assess what safeguards exist that might already or could potentially lessen those impacts

4. **Develop and Implement Action Plan** - Determine what can be done and select those actions that are appropriate for the community in question
Capability Assessment

- Land Use & Development Planning
- Maps
- Building Pipeline Hazard Resistant & Resilient Communities
- Emergency Response
- Pipeline Awareness
- Damage Prevention
Capability Assessment

Maps & Pipeline Awareness
- Pipeline Maps
- Emergency Liaisons
- Communication of Pipeline Emergency Information to Public

Damage Prevention
- 811
- One-Call
- Common Ground Alliance

Emergency Management
- NENA 911 Standard 56-0007
- Emergency Responder Training & Equipment
- Incident Investigation

Land Use and Development Planning
- Land Use and Development practices near pipelines
- Public Project Coordination with Pipeline Replacement Programs

PHMSA Grants to State & Local Governments and Communities
# PIPA Evaluation Tool

## Pipeline and Informed Planning Alliance (PIPA) Recommended Practice Evaluation Worksheet For Local Governments

### Checklist for Local Government To Evaluate Land Use and Development Practices Near Transmission Pipelines

<table>
<thead>
<tr>
<th>PIPA RP #</th>
<th>Practice Title and Description</th>
<th>Local Government Practice</th>
<th>Current Practice Action(s) Needed or Considered</th>
</tr>
</thead>
<tbody>
<tr>
<td>BL03</td>
<td>Utilize Information Regarding Development around Transmission Pipelines</td>
<td>Transmission pipeline operators should provide information about their pipelines to local governments and property developers/owners who are planning development around their pipelines. Local government authorities regulating development should use this information to establish requirements regarding land use and development around transmission pipelines.</td>
<td>Primary Action: Local Government, Pipeline Operator</td>
</tr>
<tr>
<td>BL04</td>
<td>Adopt Transmission Pipeline Consultation Zone Ordinance</td>
<td>Local government authorities regulating development should consult with affected transmission pipeline operators early in the development process, so that development designs minimize risks to populations living or working nearby, and are consistent with the needs and legal rights of the operators.</td>
<td>Adopt procedures requiring property developers/owners to consult with affected transmission pipeline operators early in the development process, so that development designs minimize risks to populations living or working nearby, and are consistent with the needs and legal rights of the operators.</td>
</tr>
<tr>
<td>BL05</td>
<td>Define Transmission Pipeline Consultation Zone</td>
<td>Local governments should define a &quot;consultation zone&quot; wherein proposed land use changes and development occurring within the zone must be communicated to affected transmission pipeline operators by the property developer/owner. Approval of development plans should require pipeline locations be included in site plans and maps, and a check-off that the property developer/owner has contacted pipeline operators regarding development plans within the consultation zone. A check-off should also be included to remind property developer/owner that calling 811 is required before digging.</td>
<td>Define a &quot;consultation zone&quot; wherein proposed land use changes and development occurring within the zone must be communicated to affected transmission pipeline operators by the property developer/owner. Approval of development plans should require pipeline locations be included in site plans and maps, and a check-off that the property developer/owner has contacted pipeline operators regarding development plans within the consultation zone. A check-off should also be included to remind property developer/owner that calling 811 is required before digging.</td>
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Steps Local Governments Can Take

- Identify & map transmission pipelines in your jurisdiction
- Use the PIPA RP Evaluation Tool to evaluate current practices & develop a plan to implement those which are beneficial to your government
- Work with developers/public and operators to implement RPs
- Contact the PIPA Communication Team and website for more information
- Apply for a Technical Assistance Grant (TAG)
- Add the PIPA logo to your government website
**Purpose:** to make grants to local communities and organizations for technical assistance related to pipeline safety issues

• Annual grants are posted in January and awarded in September

• Local governments can sign up for alerts on [http://www.grants.gov](http://www.grants.gov) to be notified when the solicitation is published

• CFDA number 20.710
Land Use Planning and Transmission Pipelines

Abundant energy drives our nation’s economy. Oil and natural gas provide energy for industrial processes, electricity generation, transportation, and residential use. Hazardous liquid and natural gas transmission pipelines play a crucial role by safely and efficiently transporting almost 100 percent of the natural gas and about 98 percent of the ton-miles of oil and refined petroleum products consumed in the United States. Many transmission pipelines were constructed in sparsely populated rural areas; however, community growth has turned many of these once rural areas into urban and suburban areas with residential, commercial, and industrial development.

Community growth can have an impact on transmission pipeline safety. Placing people in proximity to transmission pipelines can pose potential risks of concern to all stakeholders, resulting from the unintentional release of products transported through the pipelines. Such releases can result from a variety of causes and may result in injuries or fatalities as well as property and environmental damage. Although the risk of any individual being injured by a transmission pipeline incident is very low, land development in proximity to pipelines can increase such risks.

One way to reduce transmission pipeline risk is for communities to be aware of transmission pipeline locations and informed of pipeline risks when making decisions regarding land use planning and development. To assist communities become risk-informed about transmission pipelines and make better land use planning and development decisions related to pipelines, PHMSA initiated and supports the Pipelines and Informed Planning Alliance (PIPA).

PIPA is a collaborative effort by a spectrum of pipeline safety stakeholders. PIPA has developed recommended practices for protecting communities, protecting transmission pipelines, and communicating among stakeholders. The PIPA recommended practices can help communities make risk-informed decisions for land use planning and development adjacent to transmission pipelines. You can access the OSHA Recommended Practices through the enhanced menu on the left side of this page. The PIPA Report is available in its entirety from links there and below.

PIPA Report

Table of Recommended Practices

PIPA Risk Report

PEPA Toolbox

PIPA Online Resources

www.PIPA-info.com