

Obtaining accurate location of pipelines and easements also can be challenging. While good resources exist, such as the National Pipeline Mapping System (NPMS) through PHMSA, sources are only as good as the original location data. Many old easements, particularly in open space areas, were defined by physical features, such as oak trees or streams that might not even exist anymore. Others are poorly marked, and some owners have even granted rights to operators to locate facilities anywhere on their properties. On some sites, there may be multiple pipelines owned by a variety of companies, unclear land title records, and inadequate or dated information on the owners.

A developer who chooses a site that has a natural gas or hazardous materials pipeline on or close to it likely will have many challenges starting with knowing the pipeline exists in the first place, then ascertaining where those lines are located and to whom they belong. And the developers are dealing with these issues at the same time they are undertaking the usual challenges such as layout/land planning, yield, land-use cost and marketing.



A repair project at a Pacific Gas and Electric facility went awry just before the San Bruno pipeline explosion in California last September. Both lives and homes were lost as a result.

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PIPA Effort and Recommendations

The goal of the PIPA initiative was to find ways to reduce risks and improve the safety of affected communities and transmission pipelines by improving the way communities plan land use and new development near transmission pipelines. To achieve this goal, a coalition and consensus-based effort between PHMSA and the many PIPA stakeholders resulted in the adoption and implementation of PIPA-developed





In Northlake Forest, Cypress, Texas, the developer worked with officials to incorporate the pipeline right-of-way as green space and common area.

recommended-practices related to risk-informed land-use planning near transmission pipelines.

Developers are not transmission pipeline experts, and pipeline experts are not developers. Still, pipeline risks can best be addressed with proper risk-informed planning and design. For this reason, involving the pipeline operator early in the development process should ensure adequate time to incorporate the operator's safety concerns into project design. Establishing good communications between pipeline operators and developers is much more effective than practices such as establishing fixed-distance setbacks from transmission pipeline rights of way. Many of the PIPA Recommended Practices may appear to be "common sense," but in practice the concept of "risk-informed" planning has generally not been considered and will prove enlightening to local governments and developers.

Accessing the PIPA Final Report will give developers and builders a good perspective on the issues. The PIPA report also has some valuable guiding principles for the building/development industry. The details of Recommended Practices and graphical examples of both good and bad practices are more extensive than can be included in this article. However, a few examples include:

- Obtain information on the pipeline and the risks it may involve. In addition to safety, the risks can also affect marketing of a project.
- Consider the risk characteristics of the project end user. Careful land use planning for youth, elderly or other hard-to-evacuate users should be emphasized.

- Incorporate low-use or passive recreation areas in plans associated with these pipeline corridors. The combined use of these areas can be low-risk amenities to projects. Nature areas and walking trails are excellent combined uses.
- Plan high density extremely cautiously when close to hazardous pipelines and integrate parking or landscape areas to provide additional separation and risk reduction.
- Avoid designing site drainage infrastructure, such as swales and ponds/detention areas that may have potential for future erosion in the vicinity of hazardous pipelines.
- Include good location and operational/owner information on plans, and educate buyers or end users about the presence of these facilities.

Many other excellent recommendations and practices are covered in the final PIPA report. As a conclusion, I want to draw attention to a significant concept within the final PIPA recommendations that could affect all stakeholders and particularly the development industry. It is the concept of creating a "Consultation Zone" and possibly a "Planning Area" along an existing hazardous material pipeline on a property under development consideration. (This can be found under Recommendations BL04, BL05, BL06 and a Model Ordinance in Appendix B of the PIPA report.)

The concept of communication-based Consultation Zones is fundamental to risk-informed land-use planning, yet it was one of the most highly debated issues in the PIPA effort. The Consultation Zone is an area with a width to be determined by the community based on the type and operating characteristics of the pipeline. The operator, developer and community would exchange information to conduct risk-informed land-use planning. The Planning Area could take this effort a step further by establishing appropriate and/or inappropriate land uses close to pipelines based on operating characteristics and risk information.

What Consultation Zones or Planning Areas do not do is recommend setbacks or mandate land uses outside of a risk-informed procedure. The recommendations in the PIPA report are not code or regulations unless a local jurisdiction chooses to adopt them into code. However, developers or builders working in a community considering adopting the recommendations in PIPA's report need to proactively work with the community and pipeline operators to assure that a risk-informed process is followed. **LD**

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REFERENCES

- PHMSA Pipeline Safety Communication Site, PIPA Study / Report www.pipelineinformedplanning.com
 Pipeline Location Mapping: NPMS: www.npms.phmsa.dot.gov