

*PIPA Report, November 2010*

documented agreement between a property owner and a transmission pipeline operator provides a clear, enforceable vehicle to communicate allowable activities or uses of the pipeline right-of-way, including those that are not allowed in the original easement. Recording easements will help ensure that land use and development activities are not conducted in a manner that could be detrimental to transmission pipeline integrity and safety.

Documentation of easements is necessary to identify issues that may arise in planning future land use and development. Identification of potential conflicts and issues provides the opportunity to resolve them through discussion early in the planning process. Regardless of the type or duration of the agreement, property owners are subject to applicable state one-call damage prevention laws prior to performing any excavation on a transmission pipeline right-of-way.

In addition to recording documents with the appropriate statutory office, transmission pipeline operators should have a comprehensive record-keeping system established for land documents. Agreement records should be retained for the life the document, including any “encroachment agreement”, letter of no objection”, “partial release”, or “easement amendment”.

**References:**

- [State of Minnesota in Supreme Court CX-96-2319](#)

*PIPA Report, November 2010*

**BL09 Document and Record Easement Amendments**

**Practice Statement** Easement amendments should be documented, managed and recorded.

**Audience** Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

A transmission pipeline operator may desire to use the land within the boundaries of the easement in a manner that was not allowed in the original easement agreement. Examples of modifications to the agreement include the installation of additional appurtenances, the utilization of an existing right-of-way for additional pipelines for the efficient use of land, or the redefining of the easement. To do so, the transmission pipeline operator will need to consult with the property owner to gain permission to perform the desired activity or use. If permission is granted, the agreement may be documented in the form of an easement amendment.

Easement amendments modify the existing agreement between the pipeline operator and the landowner. The parties with legal interests to the land come to agreement on the language of the easement amendment, survey the property and record the amendment with the appropriate statutory office (i.e. county recorder, parish clerk). The easement amendment is retained for the life of the easement. There may be additional compensation provided to the landowner based on the value of the land in exchange for the new rights.

PIPA Report, November 2010

**BL10 Implement Communications Plan**

**Practice Statement** Transmission pipeline operators should develop and implement effective communications plans when communicating acceptable transmission pipeline right-of-way uses and activities to property developers/owners and other stakeholders.

**Audience** Transmission Pipeline Operator

**Practice Description**

Typical transmission pipeline operator to stakeholder communications regarding acceptable rights-of-way uses and activities occur either to: 1) exchange information; 2) educate; or 3) cause behavior or a change in behavior. Most pipeline operator communications regarding acceptable right-of-way uses and activities are intended to cause certain behaviors among stakeholders. Understanding what behavior is expected and what behavior is currently exhibited is important to changing behavior. To maximize the opportunity created with each communication, the pipeline operator should give considerable thought to what behavior is desired, what behavior needs to change, and what behavior should be maintained by the specific stakeholder segment.

A process model for communicating to stakeholders regarding acceptable uses and activities on transmission pipeline rights-of-way is applicable in any circumstance. This includes existing transmission pipelines in existing developed areas and rural areas, when a new transmission pipeline is being constructed, and when new development is occurring near an existing transmission pipeline. The following PIPA seven-step model is useful when a transmission pipeline operator is communicating acceptable right-of-way uses and activities to land owners and other stakeholders. However, the model can be used by any stakeholder to make their communications more effective.

1. Identify the problem (or need) the communication will address
2. Determine which stakeholder(s) receives the communication
3. Identify draft message to be communicated
4. Develop the final message and message delivery system based on a strategy best suited for the desired outcome
5. Implement communications
6. Measure effectiveness
7. Identify and implement changes if necessary

Further discussion of the PIPA seven-step communication model is included as [Appendix E](#).

Transmission pipeline operators are required by current pipeline safety regulations to develop and implement enhanced public awareness programs following the [American Petroleum Institute's Recommended Practice \(RP\) 1162](#). RP 1162 has requirements similar to this seven-step process. Additionally, the [Common Ground Alliance \(CGA\) Damage Prevention Best Practices](#) include practices for communicating with damage prevention stakeholders.

38

*PIPA Report, November 2010*

**BL11 Effectively Communicate Pipeline Risk and Risk Management Information**

**Practice Statement** Transmission pipeline operators should identify barriers to effectively communicating with stakeholders and use communication techniques designed to overcome those barriers and effectively engage stakeholders to communicate with them regarding pipeline risks and how the operator manages such risks.

**Audience** Transmission Pipeline Operator

**Practice Description**

For communication to be effective, it must be a two-way dialogue. However, personal experiences affect the way messages are received. This and other considerations make it essential that the transmission pipeline operator understands that there may be barriers to effective communication and finds ways to overcome those barriers to better communicate with stakeholders.

[Appendix F](#) to this report looks at communications barriers from the perspective of a transmission pipeline company communicating with key stakeholder audiences, and provides some suggested considerations and tools to potentially address those barriers. Some, all, or none of the barriers identified in [Appendix F](#) may be present in any actual situation.

Identification of barriers to effective communication is also inherent to the PIPA seven-step communication model (see Recommended [Practice BL10](#)). Communication regarding pipeline risk and risk management should follow the PIPA seven-step model. (See [Appendix E](#))

The transmission pipeline operator should openly communicate with stakeholders regarding land use and development near pipelines. Regular meetings with key local officials involved in land use planning and development and with local developers and developer organizations should be held to provide an easy flow of information to and from these key stakeholders.

*PIPA Report, November 2010*

**BL12 Notify Stakeholders of Right-of-Way Maintenance Activities**

**Practice Statement** Transmission pipeline operators should notify affected stakeholders of right-of-way maintenance activities, including vegetation management.

**Audience** Transmission Pipeline Operator

**Practice Description**

After a transmission pipeline is installed, the pipeline right-of-way (ROW) must be maintained by the pipeline operator to allow for inspection of surface conditions as required by federal law. The transmission pipeline operator must maintain the ROW vegetation so that it will not hinder pipeline inspection and maintenance activities. Extensive landscaping or other obstructions can block the view of and impede the operator's access to the pipeline.

Prior to implementing ROW maintenance activities, the pipeline operator should make a reasonable effort to contact the affected stakeholders and provide an explanation regarding the need for vegetation management activities. This should include a discussion of the rights granted under easements for the pipeline operator to maintain the ROW, and the anticipated start and completion dates for the maintenance activities. Timely notification should be provided to the affected stakeholder. Notification may take place via methods such as mailed letters, door hangers, phone calls, or face-to-face contacts, depending on the location and situation.

Re-establishing a right-of-way that has not been previously maintained may require additional advance communications between the property owner and the transmission pipeline operator prior to initiating the activity.

Following is a discussion regarding the bases for maintaining the ROW. The transmission pipeline operator may want to include a discussion of these bases in its communication with affected stakeholders.

The transmission pipeline right-of-way must be maintained in order to facilitate the identification of surface conditions such as:

- Unauthorized activities on or near the right-of way
- Heavy equipment on the right-of-way without authorization
- Urban encroachment
- Construction activities on or near the right-of-way
- Soil defects
- Erosion at water crossings, flooding on the right-of-way or sedimentation in streams
- Damage to company property
- Missing or moved aerial markers, pipeline line markers or identification signs
- Evidence of leaking gas or liquid

A transmission pipeline ROW that is adequately maintained free of obstructions is an important visual indicator of the existence of transmission pipeline facilities for anyone performing construction or other work near the pipeline. Third-party incidents are a leading cause of damage to transmission pipelines

40

*PIPA Report, November 2010*

and often occur when excavation or other construction activity occurs near the pipeline and the pipe is accidentally struck.

If pipeline damage occurs, the pipeline operator may need direct and immediate access to the pipeline and this will be facilitated by an adequately maintained ROW. In the event of an emergency, a clear ROW is necessary to facilitate access by both the pipeline operator and emergency response personnel. Obstructions on the ROW can prohibit their ability to respond.

A clear ROW makes conducting inspections, often performed via aerial patrol, more efficient and effective. Other methods of inspecting transmission pipelines, such as vehicle and foot patrols, also require a clear ROW.

A clear ROW enables the transmission pipeline operator to conduct inspections and testing to verify pipeline integrity and to perform general maintenance and repairs as needed. According to pipeline safety regulations, transmission pipeline operators must have a patrol program to inspect and observe surface conditions on and adjacent to the transmission line right-of-way for indications of leaks, construction activity, and other factors affecting safety and operation. While an operator may choose to perform inspections more frequently, hazardous liquid transmission pipeline operators must inspect 26 times a year at an interval that does not exceed 21 days. Natural gas transmission pipeline operators must inspect 1 to 4 times a year at an interval that does not exceed 4.5 to 15 months, depending on the population density near the pipeline. The pipeline ROW should be maintained at a frequency that allows the operator to inspect surface conditions at the minimum required inspection intervals.

The ROW maintenance frequency should also be in keeping with the surrounding environment. For example, a greenway in a suburban development may be maintained more frequently than a ROW through a forested park.

Although maintaining the ROW for 25 feet on each side of the pipeline is typical, the easement agreement may dictate otherwise. A smaller maintenance distance may be adequate, depending on local conditions and methods used for ROW inspection, as long as it is adequate for access and inspection of the ROW surface conditions.

Side trimming of the tree canopy may be necessary for aerial surveillance to be effectively performed. For aesthetic purposes, operators may "feather cut" in more urban and developed areas while they may "hard cut" in more rural areas. Whichever technique is used, the result should be a clearly defined ROW to help keep the public aware of the pipeline's presence and provide for operation and maintenance needs.

In addition to side trimming, operator vegetation maintenance practices should include scheduled mowing and brush-hogging where necessary. Typically, pipeline operators use herbicides in a limited way to control weeds, vines and woody vegetation near valve locations, fences, above-ground facilities and difficult to access locations.

Trees should not be allowed within the boundary of the ROW. Tree roots have the potential to damage pipeline coatings which may contribute to the loss of integrity of the pipeline. With prior approval from the transmission pipeline operator, grass and certain types of shrubs may be permitted within the ROW,

41

*PIPA Report, November 2010*

provided that the plantings do not interfere with the maintenance, inspection and operation of the pipeline and related facilities. Typically these would include seasonal crops that would be consistent with the area, flower beds, vegetable gardens and lawns. Rights-of-way can provide useful and functional habitats for plants, nesting birds, small animals, and migrating animals. Plants that are native to the area are desirable.

**References:**

- [49 CFR 192.705, 49 CFR 195.412](#)
- [American Petroleum Institute Guidelines for Property Development](#)
- [Transportation Research Board Special Report 281, \*Transmission Pipelines and Land Use: A Risk-Informed Approach\*](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, \*Public Awareness Programs for Pipeline Operators\*](#)

PIPA Report, November 2010

### **BL13 Prevent and Manage Right-of-Way Encroachment**

**Practice Statement** 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.

**Audience** Transmission Pipeline Operator

#### **Practice Description**

When property developers/owners place structures, trees or other facilities on the transmission pipeline right-of-way (ROW), these encroachments may interfere with pipeline operations. The transmission pipeline operator should seek relief from the encroachment, particularly when the obstruction of an easement is of a permanent character.

To ensure consistency, a transmission pipeline operator should have a written encroachment policy in place. The policy should address: educating stakeholders, patrolling and inspecting the pipeline ROW for unsafe conditions and activities, documenting the results of patrols and inspections, communicating with stakeholders regarding encroachments, and removing unacceptable encroachments, including long-standing ones.

Once an encroachment is detected, the pipeline operator should document the encroachment and contact the encroaching party. If the encroachment is deemed acceptable by the pipeline operator, an encroachment agreement should be documented and signed by the landowner and the pipeline operator in accordance with the operator's policy, and recorded with the statutory office (i.e. county recorder, parish clerk).

Encroachment policies should be enforced diligently, uniformly and consistently. To promote encroachment prevention, landowners and developers should seek approval from the transmission pipeline operator for any plans that could impact the transmission pipeline ROW. Pipeline operators should ensure that all pipeline markers and signs are in good condition, legible and properly located. They should have adequately maintained and clearly defined ROWs (see PIPA Recommended [Practice BL12](#)).

Communication between the transmission pipeline operator and the property developer/owner builds a partnership in pipeline safety.

#### **References:**

- Interstate Natural Gas Association of America (INGAA ) Sample Documents: Encroachment Procedure, Encroachment Report, Encroachment Reporting Procedure (See [Appendix I](#))
- [49 CFR Parts 195.410, 195.412, 192.705 & 192.707](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)
- [American Petroleum Institute Guidelines for Property Development](#)

PIPA Report, November 2010

#### **BL14 Participate to Improve State Excavation Damage Prevention Programs**

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

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

#### **Practice Description**

A state excavation damage prevention program is comprised of a combination of state law, regulation, and procedure intended to facilitate communication between excavators and owners of underground facilities. Generally, excavators submit notices prior to excavation, which the one-call system passes on to affected facility owners in the vicinity of the proposed excavation. The facility owners/operators can then locate and mark their facilities before excavation begins. By facilitating this communication, one-call systems reduce the risk of excavator injury, damage to underground facilities, and construction down-time. Transmission pipeline operators are required by federal pipeline safety regulations to participate in qualified one-call systems. The [Common Ground Alliance \(CGA\) Best Practices](#) are internationally accepted as effective methods of reducing the risk of excavation damage to all underground facilities.

Some state excavation damage prevention laws include exemptions from one-call system participation that detract from the goals of the system. Typical exemptions fall into three categories:

1. **Facility Owners** Some state laws exempt owners of specific types of underground facilities from participation in the one-call system. Excavators must contact these facility owners directly for facility locating and marking before excavating. While this exemption allows certain facility owners to avoid the cost of participation, excavators may not be aware of these exemptions and could begin excavating without having all affected utilities located and marked. This could result in damage to those facilities. Types of facility owners exempted by some state laws include municipalities, state departments of transportation, and small water and sewer companies.
2. **Excavators** Some excavators are exempted from calling for underground facilities to be located and marked before they begin digging. If the excavator chooses to exercise this exemption, the likelihood of excavation damage is increased. Damage to any type of underground infrastructure could have negative consequences. Thus, these exemptions create safety risks. Types of excavators exempted by some state laws include homeowners and state departments of transportation.
3. **Types of Excavation** Excavators are exempted from calling for a utility locate before conducting specific types of excavation. Any excavation can damage underground facilities, especially if the facilities are shallow or the type of excavation changes during the course of the project. Types of excavations exempted by some state laws include road grading.

44

*PIPA Report, November 2010*

Many organizations across the country are actively working to improve state excavation damage prevention programs. The [Common Ground Alliance](#) (CGA) works at the national level and has recently formed partnerships with regional organizations. Many of these regional organizations existed well before the CGA as damage prevention councils or utility coordinating councils, but have welcomed the CGA's support to broaden their membership base.

A summary of PHMSA damage prevention initiatives is available on PHMSA's Pipeline Safety [Stakeholder Communications website](#).

**References:**

- [49 CFR 192.614, 49 CFR 195.442](#)

PIPA Report, November 2010

#### **BL15 Enhance Damage Prevention Practices near High-Priority Subsurface Facilities**

**Practice Statement** Transmission pipeline operators should implement enhanced damage prevention practices within the transmission pipeline right-of-way to ensure that pipeline operators and excavators meet on-site prior to excavation activity near high-priority subsurface facilities.

**Audience** Transmission Pipeline Operator

#### **Practice Description**

The [Common Ground Alliance \(CGA\) Best Practices](#) are internationally accepted as effective methods of reducing the risk of excavation damage to all underground facilities. However, the CGA Best Practices apply to all types of underground facilities, including cable television, water pipelines, and transmission pipelines. High-priority subsurface facilities warrant more stringent damage prevention practices.

High-priority subsurface facilities include transmission pipelines, high-voltage electric supply lines, fiber optic lines, and pressurized sewage pipelines. Damage to these high-priority subsurface facilities could result in significant physical injury to the excavator and/or individuals in the vicinity of the excavation. Damage could also result in interruption of critical services or products. Unreported or undetected damage to high-priority subsurface facilities poses a significant risk to life, property, and infrastructure.

CGA Best Practice 4-9, "Positive Response is Provided to Facility Locate Requests" does not require a face-to-face meeting or an onsite meeting between the transmission pipeline operator and excavator prior to the beginning of the excavation. Under the practice, positive response can be markings or documentation left at the job site, callback, fax, or automated response system.

To ensure appropriate damage prevention when excavation is proposed within 10 feet of a transmission pipeline or other high-priority subsurface facility, the pipeline operator or other facility operator should notify the excavator of the existence of the transmission pipeline or other high-priority subsurface facility prior to the legal excavation start date and time, as such date and time are authorized pursuant to one-call requirements. The excavator and transmission pipeline operator should conduct an onsite meeting at a mutually agreed upon time to determine actions or activities required to verify the location of the pipeline or other high-priority subsurface facility prior to the start of excavation.

When excavators are performing tasks that are of high risk to transmission pipeline safety, communication clearly delineating the technical details of the operation needs to be documented. Transmission pipeline operators should provide information such as the location, size and type of pipeline facility to the excavator.

Excavators should provide the operator with details about the type of equipment excavation equipment to be used, duration of the excavation project, dynamic loading over the pipeline, and other technical information in order for the pipeline operator to perform an engineering evaluation of the effects on the pipeline. The pipeline operator may require additional measures be taken to protect the pipeline from excessive loads or potential damage due to misaligned horizontal directional drills. Additional dirt cover and/or mats, timber bridges, or other protective materials deemed necessary by the transmission pipeline operator may be placed over the pipeline for the duration of any loading. Vibration equipment

46

*PIPA Report, November 2010*

is usually not permitted within the transmission pipeline right-of-way. Hand digging at a minimum of two feet from the pipeline is typically required. This recommended practice is not intended to preempt any existing state or transmission pipeline operator requirements that currently specify a different distance.

Once the required information (planned work, types of equipment, loads, etc.) is received from the excavator, the pipeline operator will need sufficient time to review and develop solutions to ensure that the pipeline is adequately protected. Work should not commence until the operator has provided written notification to proceed. The operator and the one-call system need to be contacted before digging. After excavation begins, the transmission pipeline operator should have a representative on site to monitor construction activities within the right-of-way.

*PIPA Report, November 2010*

**BL16 Halt Dangerous Excavation Activities near Transmission Pipelines**

**Practice Statement** 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.

**Audience** Local Government, Transmission Pipeline Operator

**Practice Description**

Transmission pipeline operators should have written procedures to address the need to stop an excavation when it poses an immediate threat to the transmission pipeline facility or the general public. These procedures should include outreach to local enforcement agencies and personnel. The outreach communications should include information describing potential dangers to public safety of unsafe excavation practices near the pipeline.

Local enforcement personnel play a critical role due to their authority to legally halt an unsafe excavation. Agencies with the authority to halt a dangerous excavation may vary among governments. For example they may include titles such as Safety Officer, Police, Fire Department, Fire Marshal, Utility Coordinator, and Building Code Department.

The transmission pipeline operator should build relationships with the proper enforcement personnel in advance to facilitate timely response and corrective action.

**References:**

- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)

*PIPA Report, November 2010*

**BL17 Map Abandoned Pipelines**

**Practice Statement** When a transmission pipeline operator abandons a transmission pipeline, information regarding the abandoned pipeline should be maintained and included in the information provided to the one-call center.

**Audience** Transmission Pipeline Operator

**Practice Description**

When abandoning a transmission line, the pipeline operator should maintain the facility registration of the abandoned line with the one-call system. When receiving a notice of excavation from the one-call center, the transmission pipeline operator should, if known: (a) provide markings or notification to the excavator of the abandoned pipeline, (b) advise the excavator of the abandoned pipeline's contents, if known, and (c) advise the excavator of any safety precautions to take while working over or in close proximity to the abandoned pipeline. Transmission pipeline operators should inform excavators that if an unidentified pipeline facility is encountered during excavation, the excavator should not treat the underground pipeline facility as abandoned until receiving notification from the pipeline operator that the underground pipeline facility is abandoned.

Most one-call centers do not maintain line segment data from transmission pipeline operators. Operators typically identify by mapped polygons or grids areas for which the operator requests notification of excavating activities. The one-call center does not differentiate between active and abandoned lines. This recommended practice is intended to enable the transmission pipeline operator to identify the location of an abandoned pipeline for the excavator. This practice applies to transmissions pipelines abandoned after the PIPA recommendations are issued.

**References:**

- [Arizona Statute 40-360.22](#)
- [Common Ground Alliance \(CGA\) Best Practices](#), Practice # 4-11: Information on Abandoned Facilities Is Provided When Possible.

*PIPA Report, November 2010*

**BL18 Disclose Transmission Pipeline Easements in Real Estate Transactions**

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

**Audience** Real Estate Commission

**Practice Description**

Disclosure of transmission pipeline easements should be done in the same way that the state requires disclosure of other environmental risks, such as lead paint or asbestos products. A copy of the easement document and contact information for the transmission pipeline operator should be provided to any prospective purchaser, by the seller or seller's agent, prior to the time the initial purchase documents are signed. The existence of a transmission pipeline easement on a property should be made clear to all prospective purchasers to enable them to make informed decisions concerning the risks. Though the existence of an easement is typically noted in real estate closing papers or title reports, purchasers can be unaware that the easement is for a transmission pipeline. The disclosure language should make clear that the pipeline easement is for a transmission pipeline. The rights of the property owner and easement holder are typically spelled out in the easement document; it is important that a prospective purchaser have a copy of the easement document to examine.

*PIPA Report, November 2010*

**ND01** Incorporated into other recommended practices. Page is otherwise blank. See PIPA Recommended Practices [BL03](#) and [BL05](#) for guidance.

*PIPA Report, November 2010*

**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.

**Audience** Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

During the planning phase of a property development project, property developers/owners should seek available information about existing and possible future transmission pipeline facilities.

If the one-call center has a process for receiving and transmitting requests for meetings between developers and/or excavators and pipeline facility operators, the property developer/owner should utilize this service to request a consultation with the transmission pipeline operator. A meeting request through the one-call center can inform an affected transmission pipeline operator (and other underground facility operators) of the requestor's need to meet and discuss the proposed design. Or, it can provide a listing of affected transmission pipeline operators (and other underground facility operators) to the requestor so that a call to each operator can be made to request a meeting.

In response to requests for information, transmission pipeline operators may locate and mark their underground facilities or identify the locations of their underground facilities to the designer by other means, such as by marking-up design drawings or providing facility records to the designer. The property developer/owner should request maps of existing, abandoned and out-of-service facilities, cathodic protection and grounding systems, as-built drawings of facilities in the area if the maps are not current, future proposed project designs, and schedules of other pipeline-related work in the area. Information gathered when evaluating different design possibilities relative to the needs of the developer, community, and the transmission pipeline operator may include information such as easement widths, pipeline contents, and pipe diameter.

Transmission pipeline operators may use this opportunity to provide the property developer/owner a copy of the company's development guidelines and procedures, if they exist. Other methods of gathering information available to the property developer/owner may include contacting coordinating committees/councils, other designers, engineering societies, and governmental agencies as a means of identifying underground facility owners/operators in an excavation area. Gathering information may also include a review of the site for above ground indications of underground facilities (i.e. permanent signs or markers, manhole covers, vent pipes, pad mounted devices, riser poles, power and communication pedestals and valve covers).

Another reference source for determining the general location of transmission pipelines is the National Pipeline Mapping System (NPMS). Developers may access the [NPMS online](#).

**References:**

- [Minnesota Statute 216D](#)
- [Pennsylvania Act 287 of 1974, as amended by Act 187 of 1996](#)
- [Subsurface Utility Engineering, Federal Highway Administration](#)

52

*PIPA Report, November 2010*

- [Florida Department of Transportation Utility Accommodation Manual, Topic No.: 710-020-001-f, October 2007](#)
- [NTSB Safety Study, Protecting Public Safety through Excavation Damage Prevention, NTSB Report Number: SS--97/01, NTIS Report Number: PB97-917003](#)
- [Common Ground Alliance Best Practices 2-2 and 3-15](#)

*PIPA Report, November 2010*

**ND03 Review Acceptability of Proposed Land Use of Transmission Pipeline Right-of-Way Prior to Design**

**Practice Statement** The property developer/owner should review preliminary information about acceptable land uses on a transmission pipeline right-of-way prior to the design of a property development.

**Audience** Property Developer/Owner

**Practice Description**

Managing land use activities on a transmission pipeline right-of-way (ROW) is a challenge for all stakeholders involved. A property developer/owner may desire to utilize the ROW in a property development. However, inappropriate land use activities can contribute to the occurrence of a transmission pipeline incident and expose those working or living near a transmission pipeline to harm should an incident occur.

When considering a new land use activity in a transmission pipeline ROW, the property developer/owner, along with the pipeline operator should consider who maintains the ROW and how it is maintained. The existing easement is the governing document and any changes to that document should be recorded in an encroachment agreement (see Recommended [Practice ND26](#)). Encroachment agreements are encouraged to ensure appropriate communication occurs and that all parties have appropriate and complete information on which to base decisions. It should be noted that most ROW agreements have a section for pipeline repairs with the understanding that the ROW may be disturbed, whether by access or excavation. The need for repairs is a considering factor into the acceptability of a land use or activity on a transmission pipeline ROW.

Many transmission pipeline operators provide operator specific guidelines for uses of the pipeline right-of-way. Pipeline industry association websites provide guidance materials to assist the property developer/owner in assessing the common acceptability of different uses of the pipeline right-of-way. The table in [Appendix D](#) is another source of guidance intended to increase awareness and encourage early communication among key stakeholders when considering changes to existing land use or new land use development near existing transmission pipelines.

[Appendix D](#) lists common land use activities as a guideline in determining whether a proposed land use may be acceptable or not. There may be variances to this guidance based on site specific conditions and individual pipeline operator practices. Early notification to the transmission pipeline operators by the property developer/owner is encouraged, to ensure optimum land use considerations and pipeline safety.

54

*PIPA Report, November 2010*

**ND04 Coordinate Property Development Design and Construction with Transmission Pipeline Operator**

**Practice Statement** When property development is planned within the consultation zone (reference PIPA Recommended [Practice BL05](#)), the property developer/owner and the transmission pipeline operator should communicate to ensure possible impacts of pipeline incidents and maintenance needs are considered during development design and construction.

**Audience** Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

Property developers/owners should initiate communication with transmission pipeline operators as early as possible in the property development planning process. Early discussions may ward off development designs that could raise the risk of impact to the community or damage to a nearby transmission pipeline.

As the development construction start date draws nearer, the cost of redesigns can become much more significant. Also, the property developer/owner may miss an opportunity to use the transmission pipeline right-of-way to enhance the property development (see PIPA Recommended [Practice ND08](#)). Other property development design considerations relative to the proximity of a pipeline are discussed in PIPA Recommended Practices ND08 – ND15.

Regardless of when communication begins, the construction phase of a property development poses the greatest risk to the integrity of a nearby transmission pipeline. The location of the transmission pipeline easements should be shown on the construction plans. The one-call system should be used to ensure the precise location of all underground facilities is determined before excavation begins. Also, the development construction should not inhibit access for to the transmission pipeline for the pipeline operator or emergency responders.

The following examples illustrate the negative consequences for stakeholders if communication about proposed property developments near transmission pipelines occurs late in the planning process.

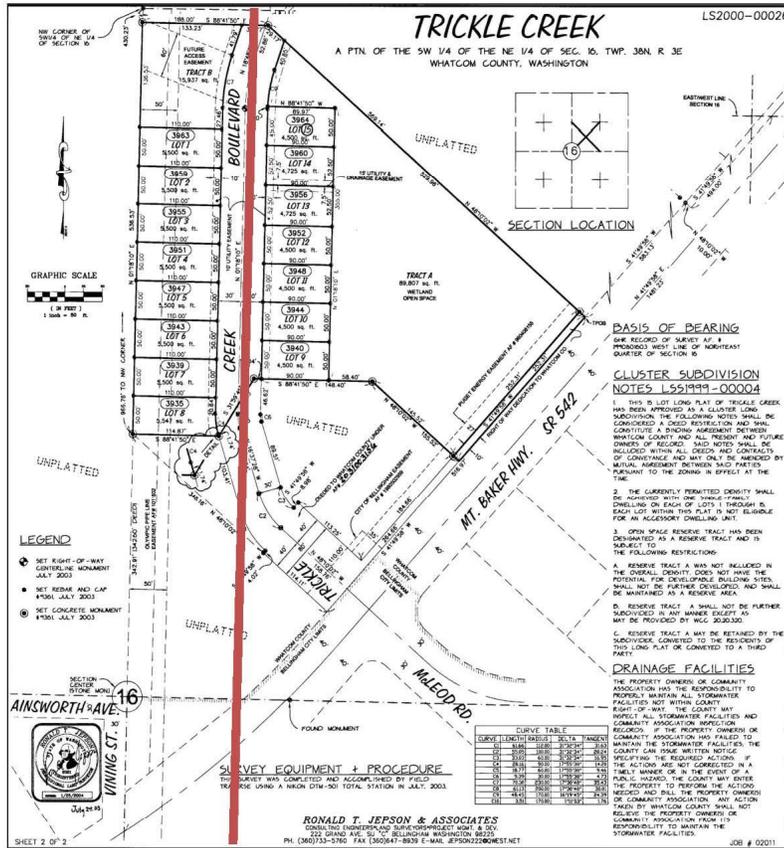
*PIPA Report, November 2010*



*Example of development constructed over a transmission pipeline right-of-way without consultation among property developer/owner, transmission pipeline operator and local government. Note the encroachment of the fence on the transmission pipeline right-of-way. It obstructs the transmission pipeline operator's ability to patrol the pipeline. With proper advance planning between the parties in the initial platting stage, perhaps a greenbelt could have been incorporated to eliminate the potential for subsequent ROW encroachments by the property owners. The truck on the right in this picture has the potential for heavy vehicular encroachment over the pipeline. The property owners are prohibited from installing large landscaping, patios or other structures on the transmission pipeline right-of-way.*

56

PIPA Report, November 2010



Example plat of development constructed over a transmission pipeline right-of-way without consultation among developer, transmission pipeline operator, and local government. Note location of the transmission pipeline right-of-way in red. Proper consultation between all parties may have enabled the pipeline to be platted at the rear edge of all lots with possibly a green belt (i.e. no lot lines crossing the easement) provided on the plat.

References:

- [Land Use Planning In Proximity to Natural Gas and Hazardous Liquid Transmission Pipelines in Washington State](#)

*PIPA Report, November 2010*

**ND05 Incorporated into other recommended practices. Page is otherwise blank.**

*PIPA Report, November 2010*

**ND06 Require Consideration of Transmission Pipeline Facilities in Land Development Design**

**Practice Statement** Whenever development is proposed on property containing 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.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Many states and/or local governments have a list of issues that must be addressed as part of the land development process, such as the availability of potable water, sewer, adequate roads, environmental constraints, etc. The land development process should require an analysis of how the development design can safely integrate any existing transmission pipeline facilities.

*PIPA Report, November 2010*

**ND07 Define Blanket Easement Agreements When Necessary**

**Practice Statement** Upon request by the landowner, a transmission pipeline easement agreement may be defined to an acceptable, reasonable, and safe width and explicit location. State statutes or local government regulations may require easements to be defined prior to the approval of rezoning, subdivision plats and development permits.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

Some legacy transmission pipeline easements did not explicitly define the location or size of the easement or the location of the transmission pipelines within the easement. Some agreements did not describe the types of land use activities that could or could not occur on the right-of-way. In some states, these “blanket easements” may give the transmission pipeline operator the right to put a replacement pipeline anywhere on the property within the boundaries of the original easement grant.

The lack of clarity of an easement can lead to conflicts among stakeholders regarding the land use, the location of the transmission pipelines and easement, and the respective rights and obligations of both the land owner and transmission pipeline operator. By defining easement locations prior to approving rezoning, subdivision plats and development permits, confusion is avoided regarding which lands are burdened by the easement rights of the transmission pipeline operator. Mortgage companies may also require the easement be defined prior to providing a mortgage. Some states require the easement owner of blanket easements to define the easement to a specific location when requested by the landowner. Additionally, most transmission pipeline operators have a process for defining the easement to a specific location when requested.

The amended easement should be recorded at the appropriate statutory office (i.e. county recorder, parish clerk).

*PIPA Report, November 2010*

**ND08 Collaborate on Alternate Use and Development of Transmission Pipeline Right-of-Way**

**Practice Statement** Property developers/owners, local governments and transmission pipeline operators may collaborate on alternative use of the transmission pipeline right-of-way and related maintenance.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

Transmission pipeline rights-of-way (ROW) have the potential to be utilized for the benefit of the community and/or the property developer/owner while still maintaining the safety and integrity of the transmission pipeline facilities. Property developers/owners and local governments may work with the pipeline operators to explore possible uses of the property. These could include utilizing the transmission pipeline easement to create green spaces, parks, golf courses, hike and bike trails, horse trails, and other recreational spaces.

In considering such uses, the stakeholders should discuss who will maintain the ROW and how they maintain it. Some local governments and property developers/owners have worked together to the mutual benefit of the community and the developer by offering incentives such as higher building densities in exchange for development that enhances the transmission pipeline ROW.

[Appendix C](#) is intended for use by city and county planners, engineers, developers, land surveyors and others involved in the initial stages of land development on or near existing transmission pipeline ROW. It provides visual examples that illustrate both successful collaborative efforts and situations to avoid. In safely developing along a transmission pipeline ROW, certain criteria should be met. These include:

- The ROW should be a clearly defined transmission pipeline corridor that blends with the surroundings. It should not be disguised. The width of a ROW varies, depending on the size and number of transmission pipelines located in the ROW, the products transported, site specific conditions, and pipeline operator practices.
- Permanent structures, significant grade changes, and large landscaping are generally not acceptable.
- The transmission pipeline operator may require the right to disturb the developed use of the ROW in order to maintain and access the transmission pipeline.
- While analyzing potential development of the ROW, the pipeline operator considers potential loading, corrosiveness to the pipeline, increased likelihood of third-party damage, and the ability to monitor and maintain the pipeline.
- For incident and emergency response planning, the pipeline operator considers public escape routes, emergency responder access and situation control, site specific product spill characteristics, and potential environmental impact.

61

*PIPA Report, November 2010*

- The operator should establish an effective transmission pipeline marking strategy that will help keep markings in place. Additional markers designed to prevent unauthorized excavation may be warranted.

Development on or near transmission pipelines increases the probability of excavation damage. In an ideal layout for a new development, the entire easement width should be reserved for green space or other community use. It is also desirable to have as few individual landowners as possible be affected by the easement. A lot division on either boundary of the easement is preferable to splitting the easement between lots. Construction, maintenance and routine inspections of the transmission pipeline can be disruptive to the landowner when the easement is split between lots. All stakeholders should consider ways to mitigate this risk throughout the lifetime of the use of the developed right-of-way.

Individual transmission pipeline operators are likely to have different maintenance and operations practices, which could make a specific type of ROW development acceptable to one pipeline operator but not to another. Transmission pipeline operators need enough lead time to review site specific development plans. Generally, the operator will request a scope of work, description, and plan and profile drawings of the proposed development. The pipeline operator may charge for the review if the nature of the proposed development requires extensive preliminary engineering and/or field inspection services. A clear understanding of the property developer's/owner's and pipeline operator's rights, restrictions and responsibilities should be legally documented. Examples of types of land use agreements commonly used are encroachment agreements, encroachment permits, easement amendments, reimbursement agreements, partial releases and letters of no objection.

Development activities near a transmission pipeline ROW may affect the integrity of the transmission pipeline and the safety of the public. Property developers/owners should consult with the pipeline operator as early as possible when planning development near the pipeline ROW. Development activities or land uses near the transmission pipeline ROW that may affect the integrity of the pipeline include but are not limited to: blasting, contouring or terracing, clear cutting, retention ponds, drainage, walls and fences, excavations (e.g., pools, decks, and roads), drilling, boring, and landscaping. Early consultation can help reduce the chance for project delays and ensure that safe development activities can be implemented.

*PIPA Report, November 2010*

**ND09 Provide Flexibility for Developing Open Space along Transmission Pipeline Rights-of-Way**

**Practice Statement** Local governments should consider allowing site planning flexibility in the development of commercial, industrial or residential property whenever a transmission pipeline is located in, or in close proximity to, the proposed development.

**Audience** Local Government

**Practice Description**

Site planning flexibility has been incorporated into the development regulations of many jurisdictions, often to accommodate development when there are environmental constraints, such as wetlands and other sensitive areas. Local governments have allowed clustered, higher-density development to be located within broader swaths of open space, thereby creating a buffer to and preserving sensitive areas.

The goal in this recommended practice is to allow the same overall density of development within a given area while providing more space between the transmission pipeline and the development, if there are indications that such flexibility would provide greater safety. While solutions are site specific due to a parcel's topography, shape or size, local governments are encouraged to adopt regulations that allow creative designs that address both public and transmission pipeline safety concerns.

**References:**

- [Vancouver, Washington Municipal Code chapter 20.940, On-Site Density Transfers](#), for analogous land regulations that are used as described above when "sensitive lands and cultural resources" are located on the property.
- [Richland, Washington Municipal Code 22.10.340](#), example of density transfer used to provide flexibility when there is a "sensitive area and associated buffer area or setback".

*PIPA Report, November 2010*

**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.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Final plats and other recorded land records are a primary source for property records research and should show the location of all transmission pipeline easements. They should also identify the pipeline operators.

*PIPA Report, November 2010*

**ND11 Reduce Transmission Pipeline Risk through Design and Location of New Parking Lots and Parking Structures**

**Practice Statement** Parking lots and parking structures should be preferentially located and designed to reduce the consequences that could result from a transmission pipeline incident and to reduce potential interference with transmission pipeline maintenance and inspections.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Parking lots and parking structures can provide low occupant density, lower-risk land use adjacent to a pipeline right-of-way (ROW). Since human occupancy of parking lots or parking structures is likely to be short-term and low-density, they may be preferentially located to create a buffer between the transmission pipeline ROW and other occupied structures. In this manner, they may serve to reduce the exposure of other occupied structures during any potential pipeline incident. Enhanced fire protection and/or the use of materials and design providing enhanced fire endurance may be considered for parking structures adjacent to transmission pipelines to further mitigate the impact of a potential pipeline incident. Additionally, parking lots and parking structures may be designed to reduce potential interference with pipeline maintenance and inspections.

Parking structures cannot normally encroach onto a transmission pipeline ROW. Several factors should be considered in designing parking lots that encroach on a transmission pipeline ROW:

- Written permission from the transmission pipeline operator will likely be required.
- Parking areas very near or over the pipeline should be designed to limit loading that could damage the pipeline.
- Parking lots covering portions of underground transmission pipeline ROW could hamper the discovery of pipeline leaks. To prevent this, parking lot design must take into account methods of improving leak detection. Examples could include periodic strips of grass or shrubbery, vent pipes, sensor strips, etc.
- The effect of water runoff affecting the pipeline cathodic protection and soil cover should be considered when designing the parking lot. Runoff drains and gutters should not funnel water directly into the transmission pipeline ROW, as excess water could erode pipeline soil cover and subsurface pipeline support and could impact pipeline corrosion protection systems.
- Medians and islands adjacent to the transmission pipeline ROW should not contain trees that would obscure the ROW or that have a root system that could damage the pipeline. Shrubs and other low landscaping plants are generally acceptable (see PIPA Recommended [Practice ND-15](#)).
- Parking lots between a transmission pipeline and buildings should have an “air gap” between the parking lot and the buildings to reduce the potential for gas leaks to migrate underneath the parking lot and into the buildings.

65

*PIPA Report, November 2010*

The property developer should keep in mind that the parking lot might be disturbed by pipeline maintenance activities, including excavation. The transmission pipeline operator may also need to place pipeline markers, sniff points, and cathodic test stations, along the pipeline ROW, possibly within the parking lot itself. These can often be placed within medians and other landscaped areas.

**References:**

- [NFPA 101: Life Safety Code](#)
- [NFPA 88A: Standard for Parking Structures](#)

PIPA Report, November 2010

#### **ND12 Reduce Transmission Pipeline Risk through Design and Location of New Roads**

**Practice Statement** Roads and associated appurtenances should be preferentially located and designed to reduce the consequences that could result from a transmission pipeline incident and reduce the potential of interference with pipeline operations and maintenance.

**Audience** Local Government, Property Developer/Owner

#### **Practice Description**

The design and construction of roads near transmission pipelines is complex and requires careful planning and coordination between the transmission pipeline operator, state and local authorities, and the road designer, developer, and constructor. Roads that cross a transmission pipeline ROW should be designed such that the pipeline is not adversely affected, including the provision of adequate protection for the pipeline during and after road construction. This includes but is not limited to ensuring adequate depth of cover for the pipeline and proper road sub-grade and load carrying capacity. The transmission pipeline operator may decide to make modifications to the pipeline to preserve its integrity if a road is built across the pipeline ROW or adjacent to the ROW.

Other considerations for the design and location of roadways across or adjacent to transmission pipeline ROW include:

- Roadway intersections generally should not coincide with a transmission pipeline ROW. Such situations could result in increased exposure to pipeline risk for vehicle drivers stopped at the intersection. These situations could also result in additional interruptions in traffic when pipeline maintenance is performed.
- Roads should generally be located perpendicular to the long axis of the transmission pipeline, which generally reduces the loads on the pipeline from vehicle traffic and reduces the road construction hazard to the pipeline. If the road is placed parallel to the pipeline, the road should be placed outside of the pipeline ROW. If the pipeline ROW is narrow, additional consideration should be given to designing the road to prevent adverse effects on the integrity of the pipeline and to reduce future road impacts due to adjacent pipeline maintenance interruptions.
- Roads may be designed with very wide medians to accommodate a transmission pipeline ROW, with the agreement of the pipeline operator. However, designers and developers should be mindful that pipeline maintenance may require excavation within the pipeline ROW. Also, the presence of a pipeline within a wide median may prevent or limit the ability to place landscaping within the median (see PIPA Recommended [Practice ND-15](#)).
- If a road near, or crossing, a transmission pipeline serves as the only means of emergency access or egress then local emergency plans should identify an alternate emergency access and egress route.
- Roadside appurtenances (bridges, tunnels, sound barriers, signage, traffic lights, etc.) should be designed so they do not adversely affect operator access to the transmission pipeline ROW and do not interfere with cathodic protection systems or adversely impact integrity of pipeline.

67

*PIPA Report, November 2010*

- A development may avoid costly relocation of transmission pipeline facilities if roads and appurtenances that require specific grades for drainage (such as storm drains, sewers, etc.), are designed to avoid conflicts with the pipeline.

**References:**

- [API Recommended Practice 1102, Steel Pipelines Crossing Railroads and Highways, 7th edition, 2007, API Product Number: D11021](#)
- [49 CFR 192.111, § 192.323, § 192.605, § 192.917, § 195.256, § 195.402, §195.452](#)
- [NFPA 502, Standard for Road Tunnels, Bridges, and Other Limited Access Highways, ed. 2008](#)

*PIPA Report, November 2010*

**ND13 Reduce Transmission Pipeline Risk through Design and Location of New Utilities and Related Infrastructure**

**Practice Statement** Utilities (both above and below ground) and related infrastructure should be preferentially located and designed to reduce the consequences that could result from a transmission pipeline incident and to reduce the potential of interference with transmission pipeline maintenance and inspections.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Utilities that cross and/or parallel transmission pipelines should be developed in close cooperation with the pipeline operator to avoid costly relocation of the pipeline or potential conflict with pipeline operations and maintenance. Items to consider include:

- The transmission pipeline's horizontal and vertical orientation must be considered, including any offset distance required by the transmission pipeline operator.
- Utilities crossing the transmission pipeline should be designed so they do not interfere with the pipeline, including its cathodic protection, and should assure the transmission pipeline operator has access to the pipeline.
- To the extent possible, design and construction of underground utilities and related infrastructure should try to minimize potential "migration paths" that could allow leaks from the pipeline to migrate to buildings.

Coordination with the transmission pipeline operator during planning and construction is critical, especially given the history of transmission pipeline incidents associated with utility installation and maintenance.

**References:**

- [Common Ground Alliance Best Practices](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1102, "Steel Pipelines Crossing Railroads And Highways"](#), 7th edition, 2007, API Product Number: D11021
- [49 CFR 192.467](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)

*PIPA Report, November 2010*

**ND14 Reduce Transmission Pipeline Risk through Design and Location of Aboveground Water Management Infrastructure**

**Practice Statement** Storm water and irrigation water management facilities, retention ponds, and other above-ground water management infrastructure should be preferentially located and designed to reduce the consequences that could result from a transmission pipeline incident and to reduce the potential of interference with transmission pipeline operations and maintenance.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Storm water and irrigation water management facilities, retention ponds, and other above-ground water management infrastructure can be located between occupied structures and a transmission pipeline to provide a separation buffer to reduce the risk or mitigate the impact of a pipeline incident.

In considering such designs:

- Discharges from ponds and other drainage facilities should be designed to not cause erosion or compromise soil stability that could result in reduction of the soil cover over the transmission pipeline or otherwise compromise pipeline operations and maintenance.
- Culverts, and other enclosed or at-grade drainage systems should be designed to reduce the risk of a potential hazardous liquid or denser-than-air gas release from the transmission pipeline flowing into the drainage system.
- If the flow path to enclosed, or at-grade, drainage systems cannot be avoided, emergency response personnel should be informed to consider this scenario in their response plans.
- The potential for environmental contamination by transmission pipeline releases into drainage facilities and retention basins and downstream environmentally sensitive areas should also be considered.

Vegetated strips and other soft, non-structural storm water treatment methods placed adjacent to or within the transmission pipeline right-of-way may be compatible with pipeline operations and maintenance.

**References:**

- [40 CFR 122, National Pollutant Discharge Elimination System \(NPDES\) Storm Water Discharge Regulations](#)

70

PIPA Report, November 2010

**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.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Federal and state pipeline safety regulations require transmission pipeline operators to periodically patrol their pipeline rights-of-way (ROW) to observe surface conditions on and adjacent to the ROW for indications of leaks, construction activity, and other factors that could affect pipeline safety and operation. These patrols are often done by air, using helicopters or planes. To facilitate such aerial inspections, transmission pipeline operators may keep their pipeline ROW clear of trees and tree branches that overhang and obscure the ROW. Pipeline operators may remove or side-cut trees if they obscure or impede the inspection and maintenance of the ROW.

The transmission pipeline ROW should be clearly identifiable apart from trees or other tall vegetation. Property developers/owners should not place trees or vegetation on the pipeline ROW without the pipeline operator's permission. Trees and vegetation planted outside the pipeline ROW should not obstruct the ROW or associated markers or signage. Thus, planting trees and vegetation with broad canopies adjacent to the ROW should be avoided.

Trees and other vegetation should be located and controlled so as not to impede the pipeline operator's ability to access, inspect and maintain the transmission pipeline. Additionally, trees and other vegetation adjacent to a transmission pipeline ROW with root systems that may reach down to the pipeline should also be avoided, since contact from their root systems may physically impact the pipe or its protective coating.

The landowner/developer and transmission pipeline operator should work together using local land use planners and landscape and forestry professionals to make landscape choices that are acceptable.

**References:**

- [49 CFR Parts 192.705, 192.613, and 192.616, and Part 195 equivalents.](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)

PIPA Report, November 2010

**ND16 Locate and Design Water Supply and Sanitary Systems to Prevent Contamination and Excavation Damage**

**Practice Statement** Individual water supplies (water wells), small public/private water systems and sanitary disposal systems (septic tanks, leach or drain fields) should be designed and located to prevent excavation damage to transmission pipelines, interference with transmission pipeline maintenance and inspections, and environmental contamination in the event of a transmission pipeline incident.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Proper location and design of water/sanitary systems located adjacent to a transmission pipeline are vital to both public safety and the integrity of the pipeline. The design and location of these systems should take into consideration the potential impact on the water/sanitary system and on the transmission pipeline, resulting from activities associated with the installation, operation, and maintenance of the pipeline or the water/sanitary system. Considerations should include the potential for excavation damage to the water/sanitary system or the transmission pipeline, and the potential for contamination of the water/sanitary system from a pipeline incident.

If a water well is to be installed near a transmission pipeline, the pipeline and pipeline appurtenances (e.g., cathodic protection system) should be clearly located and identified. Water supply drill rigs should stay clear of the pipeline right-of-way (ROW) to ensure no direct damage to the pipeline or pipeline appurtenances from drilling or movement of the drill rig.

To reduce the risk of contaminating a water well during a hazardous liquid transmission pipeline incident, it is generally best to place the well up-gradient from the pipeline. (Keep in mind that groundwater hydraulic gradients don't necessarily follow surface topography.) The risk of contamination during a pipeline incident for wells that cannot be placed up-gradient of a hazardous liquid pipeline can be reduced by increasing the down-gradient distance from the pipeline and by ensuring that wellheads are properly sealed. Note that gas transmission pipelines do not typically pose a threat for water contamination, unless liquids are present in the gas stream.

When installing individual sanitary disposal systems (septic systems and leach or drain fields) near transmission pipelines, the septic tank and drain field should be located off the pipeline ROW but not placed in an area immediately adjacent to the ROW where heavy equipment used in pipeline maintenance might damage the septic tank or drain field.

**References:**

- [U.S. EPA Drinking Water Protection Website](#)
- [Common Ground Alliance Best Practices](#)

72

PIPA Report, November 2010

#### **ND17 Reduce Transmission Pipeline Risk in New Development for Residential, Mixed-Use, and Commercial Land Use**

**Practice Statement** New development within a transmission pipeline planning area (see PIPA Recommended [Practice BLO6](#)) should be designed and buildings located to reduce the consequences that could result from a transmission pipeline incident and to provide adequate access to the pipeline for operations and maintenance.

**Audience** Local Government, Property Developer/Owner

##### **Practice Description**

While transmission pipelines have an admirable safety record, it is prudent to design buildings and related facilities in a manner that mitigates the potential impacts on people and property from a transmission pipeline incident. Locating structures away from the pipeline right-of-way (ROW), minimizing surface and subsurface encroachments on the ROW, designing alternate escape routes, and incorporating more stringent building fire safety measures are examples of mitigation techniques that may improve public safety and limit damage to buildings or infrastructure in the event of a transmission pipeline incident.

Buildings and associated structures should not be allowed on the transmission pipeline ROW as this places building occupants in close proximity to the pipeline and could result in interference with pipeline operations and maintenance.

Roads, driveways, utilities, lot boundaries, landscaping, finished grades, green space, and fences should be planned to ensure adequate access to the transmission pipeline ROW to avoid interference with pipeline operations and maintenance activities and allow access for emergency response to transmission pipeline incidents (see PIPA Recommended [Practice ND23](#)).

The landowner or developer should consider what is allowed by the pipeline right-of-way agreement with respect to the siting of aboveground facilities such as compressor stations, metering stations, valves, pipeline markers, and cathodic protection systems (see PIPA Recommended [Practice ND18](#)). The developer or landowner and local government should work with the transmission pipeline operator to ensure that current or potential future locations of these facilities would not create interference between the development and the operation and maintenance of the pipeline and facilities. Also, development of the property should consider the current or potential future location of these facilities.

In the event of a transmission pipeline incident, evacuation of a building or shelter-in-place may be necessary. Evacuation routes should be considered during the design of a development to ensure that the potential impacts of a transmission pipeline incident will not compromise a necessary evacuation. For example, buildings should have a safe means of egress with exits located where they would not be made inaccessible by the impacts of a pipeline incident. Similarly, cul-de-sac streets should not be designed crossing a transmission pipeline as the only route of ingress or egress could be blocked during a pipeline incident.

73

*PIPA Report, November 2010*

High-rise buildings such as hotels, dormitories, apartment complexes, and office buildings may not lend themselves to a timely evacuation. Specific emergency plans addressing transmission pipeline incidents should be developed for these buildings and integrated with overall emergency plans for the site. Site emergency plans should be developed in coordination with the transmission pipeline operator (see PIPA Recommended [Practice ND23](#)).

Several codes have been issued to address these concerns, including:

- NFPA 1 – National Fire Protection Association (NFPA): Fire Code
- NFPA 101 – NFPA: Life Safety Code
- NFPA 5000 – NFPA: Building and Construction Safety Code
- IBC – International Code Council (ICC): International Building Code
- IRC – ICC: International Residential Code
- IFC – ICC: International Fire Code

These codes provide minimum standards for means of building egress, including capacity, quantity, arrangement, location, protection, and marking of means of egress. Minimum standards for emergency plans are also provided, where applicable.

Enhanced fire protection of buildings (i.e. automatic sprinklers, water screens, exposure protection, air handling/ventilation systems, etc.) and/or enhanced fire endurance (non-combustible construction, window limitation, etc.) may also be implemented to further mitigate the impact of a potential transmission pipeline incident. NFPA 1, Fire Code, provides minimum standards for separation distances for various occupancies based on fire endurance (in hours), and incorporates many other NFPA codes and standards (by reference) for fire protection. NFPA 5000 and IBC provide minimum standards for fire endurance for various buildings. Enhanced fire protection and fire endurance measures may be implemented for all categories of buildings considered under this recommended practice.

Local government agencies and property developers should consider modeling of fire, explosion, or toxic release impacts that could occur during a transmission pipeline incident for the specific land use under consideration. Egress models should also be considered. If appropriate, land use development and facility design should take this modeling into account to minimize potential impacts. The model should be fit-for-purpose and the model user should have appropriate expertise.

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 101: Life Safety Code](#)
- [NFPA 5000: Building Construction and Safety Code](#)
- [International Code Council \(ICC\): International Building Code](#)
- [ICC: International Residential Code](#)
- [ICC: International Fire Code](#)

*PIPA Report, November 2010*

- [49 CFR 192, 49 CFR 195](#)
- [24 CFR Part 51, Subpart C, Siting of HUD-Assisted Projects Near Hazardous Operations Handling Conventional Fuels or Chemicals of an Explosive or Flammable Nature](#)

*PIPA Report, November 2010*

**ND18 Consider Transmission Pipeline Operation Noise and Odor in Design and Location of Residential, Mixed-Use, and Commercial Land Use Development**

**Practice Statement** Consider noise, odor and other issues when planning and locating developments near above-ground transmission pipeline facilities, such as compressor stations, pumping stations, odorant equipment, regulator stations and other pipeline appurtenances.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

Aboveground transmission pipeline facilities, such as compressor stations, pumping stations, regulator stations, launcher/receiver stations and other pipeline appurtenances may generate noise and odors. These may not be initially noticed in some settings. However, they may be noticeable when land use is modified or a development is placed near the pipeline facility. These changes may place people in close proximity to the aboveground pipeline facilities for extended periods of time. Plans for land use and development should attempt to minimize exposures to these types of facilities.

Examples of aboveground pipeline operation and maintenance activities that may impact adjacent land development include:

- The operation of gas compressor or pump station machinery may generate noise and odors;
- Start-up and shut-down activities may produce noise and odors;
- Heat exchangers or other equipment may produce visible emissions, such as steam, to the air;
- Some pressure limiting stations may include relief valves that may release gas to the atmosphere;
- Facilities used to odorize natural gas are designed to minimize odorant emissions; however, occasional releases or spills could occur that could concern nearby residents;
- Backup power generators may be operated periodically, resulting in noise and odor; and
- Facility repairs and maintenance may require the operation of heavy construction equipment.

The property developer/owner and the transmission pipeline operator may consider additional measures to further reduce noise or visible effects from these facilities. For example, sound-insulating equipment, such as silencers or sound-reduction air plenums, natural foliage, increased separation distance, and other sound attenuating considerations may mitigate noise concerns. Additionally, land use and development around gas compressor and pumping stations should avoid practices or layouts that would adversely affect normal operation and maintenance of the pipeline facility. For example, power lines providing electric service to compressor/pumping stations need to be integrated into developments so that the service is not compromised.

The transmission pipeline operator should provide information regarding its aboveground pipeline facilities to the local government authority having jurisdiction for regulating land use and development. The purpose for providing information is to ensure there is adequate understanding of the operational

76

*PIPA Report, November 2010*

impacts of the facilities and to encourage them to incorporate pipeline coordination in their plan approval process (see PIPA Recommended [Practice BL03](#)). The local government authority should use this information to establish requirements for land use and development around the particular aboveground sites based upon the guidance on specific land uses provided in the PIPA recommended practices.

**References:**

- [18 CFR 157.206 \(5\)](#)
- [18 CFR 380.12 \(k\)](#)

PIPA Report, November 2010

#### **ND19 Reduce Transmission Pipeline Risk through Design and Location of New Industrial Land Use Development**

**Practice Statement** New industrial land use development within a transmission pipeline planning area (see PIPA Recommended [Practice BL06](#)) should be designed and buildings located to reduce the consequences that could result from a transmission pipeline incident and reduce the potential of interference with transmission pipeline operations and maintenance.

**Audience** Local Government, Property Developer/Owner

#### **Practice Description**

The risks from a transmission pipeline incident may be compounded and more complex if the storage of or processes involving flammable liquids or gases, toxic chemicals, explosives, or other hazardous substances are compromised as a result of the incident. Such materials are often found in industrial land uses such as manufacturing and storage, including freight, train, and marine terminals.

The design for industrial land use development in proximity to transmission pipelines should consider the need for more complex emergency response requirements and should include coordination with the transmission pipeline operators and emergency responders. For example, if flammable liquid or gas storage tanks are to be included in the development, they may need to be located farther from the transmission pipeline or otherwise designed to prevent the escalation of risks from a pipeline incident. The National Fire Protection Association standard NFPA 1, "Fire Code", provides standards on spacing of hazardous materials to minimize an escalation of a hazard, but does not specifically address transmission pipelines.

Onsite power plants, gas plants, water supplies, water treatment plants, and other critical infrastructure could also escalate the risks if compromised during a transmission pipeline incident. Specific site emergency response plans should also consider impacts to these infrastructures. The potential for hazardous liquid or heavier-than-air gas migration into water supplies, drainage channels, culverts, ditches, etc. should be evaluated. For additional precautions concerning water supplies and water treatment plants see PIPA Recommended [Practice ND16](#).

Local government agencies and property developers should consider modeling of fire, explosion, or toxic release impacts that could occur during a transmission pipeline incident for the specific land use under consideration. Egress models should also be considered. If appropriate, land use and development design should take this modeling into account to minimize potential impacts. The model should be fit-for-purpose and the model user should have appropriate expertise.

It should be noted that transmission pipeline operators are required to provide emergency liaison and consultations by existing pipeline safety regulations. Gas and liquid transmission pipeline operators must maintain, modify as appropriate, and follow the plans, procedures and programs they are required to establish under Title 49 Code of Federal Regulations, Parts 192 and 195, respectively.

The Pipeline and Hazardous Materials Safety Administration (PHMSA) has formed partnerships, funded research, development and training programs, and published supplementary documents to assist transmission pipeline operators, emergency response personnel, and others in developing emergency

78

*PIPA Report, November 2010*

response plans. For more information, local governments and property developers/owners can contact the [PHMSA Community Assistance and Technical Services representatives](#).

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 101: Life Safety Code](#)
- [NFPA 5000: Building Construction and Safety Code](#)
- [International Code Council \(ICC\): International Building Code](#)
- [ICC: International Residential Code](#)
- [ICC: International Fire Code](#)
- [49 CFR 192, 49 CFR 195](#)

*PIPA Report, November 2010*

**ND20 Reduce Transmission Pipeline Risk through Location, Design, and Construction of New Institutional Land Use Developments**

**Practice Statement** New development of institutional facilities that may be difficult to evacuate within a transmission pipeline planning area (see PIPA Recommended [Practice B106](#)) should be designed and the facilities located and constructed to reduce the consequences that could result from a transmission pipeline incident. Such facilities should also be located to reduce the potential of interference with transmission pipeline operations and maintenance activities. Emergency plans for these facilities should consider potential transmission pipeline incidents.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Property development that includes institutional facilities should place these facilities in locations on the property to reduce the consequences that could result from a transmission pipeline incident. This includes facilities such as schools, daycare facilities, hospitals, nursing homes, jails and prisons, and other potentially difficult to evacuate facilities. The location of these facilities should also be designed to reduce the potential of interference with transmission pipeline operations and maintenance.

In the event of a transmission pipeline incident, evacuation of a building or shelter-in-place may be necessary. Evacuation routes should be considered during the design of the development to ensure that the potential impacts of a transmission pipeline incident will not compromise a necessary evacuation. For example, buildings should have a safe means of egress with exits located where they would not be made inaccessible by the impacts of a pipeline incident. Similarly, cul-de-sac streets should not be designed crossing a transmission pipeline as the only route of ingress or egress could be blocked during a pipeline incident.

Institutional facilities may be difficult to evacuate facilities may not lend themselves to timely evacuation. Specific emergency plans addressing transmission pipeline incidents should be developed for these buildings and integrated with overall emergency plans for the site. Site emergency plans should be developed in coordination with the transmission pipeline operator (see PIPA Recommended [Practice ND23](#)). Several codes have been issued to address these concerns, including:

- NFPA 1 – National Fire Protection Association (NFPA): Fire Code
- NFPA 101 – NFPA: Life Safety Code
- NFPA 5000 – NFPA: Building and Construction Safety Code
- IBC – International Code Council (ICC): International Building Code
- IRC – ICC: International Residential Code
- IFC – ICC: International Fire Code

These codes provide minimum standards for means of building egress, including capacity, quantity, arrangement, location, protection, and marking of means of egress. Minimum standards for emergency plans are also provided, where applicable.

80

*PIPA Report, November 2010*

Enhanced fire protection of buildings (i.e. automatic sprinklers, water screens, exposure protection, etc.) and/or enhanced fire endurance (non-combustible construction, window limitation, etc.) may also be implemented to further mitigate the impact of a potential transmission pipeline incident. NFPA 1, Fire Code, provides minimum standards for separation distances for various occupancies based on fire endurance (in hours) and incorporates many other NFPA codes and standards (by reference) for fire protection. NFPA 5000 and IBC provide minimum standards for fire endurance for various buildings. Also, consider standards for outside air intake sources for buildings near transmission pipelines.

Local government agencies or property developers should consider modeling of fire, explosion, or toxic release impacts that could occur during a transmission pipeline incident for the specific land use under consideration. Egress models should also be considered. If appropriate, facility design should take this modeling into account to minimize potential impacts. The model should be fit-for-purpose and the model user should have appropriate expertise.

It should be noted that transmission pipeline operators are required to provide emergency liaison and consultations by existing pipeline safety regulations. Gas and liquid transmission pipeline operators must maintain, modify as appropriate, and follow the plans, procedures and programs they are required to establish under Title 49 Code of Federal Regulations, Parts 192 and 195, respectively.

In addition, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has formed partnerships, funded research and training programs, and has published supplementary documents to assist transmission pipeline operators, emergency response personnel, and others in developing emergency response plans. For more information, local governments and property developers/owners can contact the [PHMSA Community Assistance and Technical Services representatives](#). Information will also be available as part of ongoing public awareness efforts by transmission pipeline operators.

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 99: Standard for Health Care Facilities](#)
- [NFPA 101: Life Safety Code](#)
- [NFPA 5000: Building Construction and Safety Code](#)
- [International Code Council \(ICC\): International Building Code](#)
- [ICC: International Fire Code](#)
- [49 CFR 192.616, § 192.903, § 192.905, 49 CFR 195.440](#)
- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)

*PIPA Report, November 2010*

**ND21 Reduce Transmission Pipeline Risk through Design and Location of New Public Safety and Enforcement Facilities**

**Practice Statement** New development of emergency responder facilities within a transmission pipeline planning area (see PIPA Recommended [Practice BLO6](#)) should be designed and the facilities located and constructed to reduce the consequences that could result from a transmission pipeline incident. Such facilities should also be designed and located to avoid the potential of interference with pipeline operations and maintenance. Planning for these facilities should include emergency plans that consider the effects of a transmission pipeline incident.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Facilities that house and serve emergency responders and critical emergency response communications that are located within a transmission pipeline planning area (see PIPA recommended [Practice BLO6](#)) should be designed and located to minimize the impacts of a transmission pipeline incident on their emergency response capabilities. Police, fire, hazardous materials, emergency rescue and other emergency responder facilities, including structures, parking lots, offices, communications and dispatch centers, serve a critical role in public welfare during emergencies, including transmission pipeline incidents. Access to and egress from such facilities should be planned and implemented to avoid any impairment of the ability of emergency personnel to respond to pipeline incidents in order to address public safety issues.

If such facilities or utilities necessary for operation of such facilities are located within the planning area, then in order to reduce the risk of a transmission pipeline incident affecting the facilities (i.e. impair/interrupt capabilities), specific emergency response plans should be developed and integrated with existing overall emergency and/or relocation plans for these sites. The emergency response plans for the site should be developed in coordination with the transmission pipeline operator, as necessary.

Enhanced fire protection of buildings (i.e. automatic sprinklers, water screens, exposure protection, air handling/ventilation systems, etc.) and/or enhanced fire endurance (non-combustible construction, window limitation, etc.) may also be implemented to further mitigate the impact of a potential pipeline incident. NFPA 1, Uniform Fire Code™, provides minimum standards for separation distances for various occupancies based on fire endurance (in hours) and incorporates many other NFPA codes and standards (by reference) for fire protection. NFPA 5000 and IBC provide minimum standards for fire endurance of various buildings.

Local government agencies or developers may consider modeling of fire, explosion, or toxic release impacts that could occur during an incident for the specific land use under consideration. Egress models may also be considered. If appropriate, facility design should take this modeling into account to minimize potential impacts. The model should be fit-for-purpose and the model user should have appropriate expertise.

It should be noted that transmission pipeline operators are required to provide emergency liaison and consultations by existing pipeline safety regulations. Gas and liquid transmission pipeline operators must

82

*PIPA Report, November 2010*

maintain, modify as appropriate, and follow the plans, procedures and programs they are required to establish under Title 49 Code of Federal Regulations, Parts 192 and 195, respectively.

In addition, the Pipeline and Hazardous Materials Safety Administration has formed partnerships, funded research and programs, and has published supplementary documents to assist transmission pipeline operators, emergency response personnel, and others in developing an emergency response plan.

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 101: Life Safety Code](#)
- [NFPA 1201: Standard for Providing Emergency Services to the Public](#)
- [NFPA 5000: Building Construction and Safety Code](#)
- [International Code Council \(ICC\): International Building Code](#)
- [ICC: International Fire Code](#)
- [40 CFR 355](#)
- [49 CFR 192 and 49 CFR 195](#)

*PIPA Report, November 2010*

**ND22 Reduce Transmission Pipeline Risk through Design and Location of New Places of Mass Public Assembly (Future Identified Sites)**

**Practice Statement** New development of places of potential mass public assembly within a transmission pipeline planning area (see PIPA Recommended [Practice BLOG](#)) should be designed and the facilities located and constructed to reduce the consequences of a potential transmission pipeline incident, the risk of excavation damage to the pipeline, and the potential of interference with transmission pipeline operations and maintenance. Planning for these facilities should include emergency plans that consider the effects of a potential pipeline incident.

**Audience** Local Government, Property Developer/Owner

**Practice Description**

Places of potential mass public assembly (e.g., amusement parks, stadiums, amphitheatres, highway rest stops, churches, and other large public assemblies), should be constructed or located to mitigate the impact of a potential transmission pipeline incident and provide emergency plans for potential pipeline incidents.

Large public assembly areas and facilities may not lend themselves to a timely evacuation. Specific emergency plans addressing transmission pipeline incidents should be developed and/or integrated with existing overall emergency and/or relocation plans for these sites. The emergency plans should include coordination with the transmission pipeline operator, as necessary.

In the event of a transmission pipeline incident, evacuation or shelter-in-place may be warranted. Evacuation routes should be considered during the design of the development to ensure that the potential impacts of a transmission pipeline incident will not compromise a necessary evacuation. For example, buildings should have a safe means of egress with exits located where they would not be made inaccessible by the impacts of a pipeline incident.

Several codes have been issued to address these concerns, including:

- NFPA 1 – National Fire Protection Association (NFPA): Fire Code
- NFPA 101 – NFPA: Life Safety Code
- NFPA 5000 – NFPA: Building and Construction Safety Code
- IBC – International Code Council (ICC): International Building Code
- IRC – ICC: International Residential Code
- IFC – ICC: International Fire Code

Enhanced fire protection of buildings (i.e. automatic sprinklers, water screens, exposure protection, air handling/ventilation systems, etc.) and/or enhanced fire endurance (non-combustible construction, window limitation, etc.) may also be implemented to further mitigate the impact of a potential transmission pipeline incident. NFPA 1 provides minimum standards for separation distances for various occupancies based on fire endurance (in hours) and incorporates many other NFPA codes and standards

84

*PIPA Report, November 2010*

(by reference) for fire protection. NFPA 5000 and IBC provide minimum standards for fire endurance of various buildings.

Areas covered under this recommended practice should include "identified sites" per the gas transmission pipeline integrity management regulations (49 CFR 192.903), such as an outside area or open structure that is occupied by twenty (20) or more persons on a regular basis (50 days or more in any 12-month period). Such identified sites may include, but are not limited to, beaches, playgrounds, recreational facilities, camping grounds, outdoor theaters, stadiums, recreational areas, parks, areas outside a rural building such as a religious facility, amusement parks, stadiums, amphitheaters, agricultural gathering areas, and other large public assemblies.

Local government agencies or developers may consider modeling of fire, explosion, or toxic release impacts that could occur during an incident for the specific land use under consideration. Egress models may also be considered. If appropriate, facility designs should take this modeling into account to minimize potential impacts. The model should be fit-for-purpose and the model user should have appropriate expertise.

It should be noted that transmission pipeline operators are required to provide emergency liaison and consultations by existing pipeline safety regulations. Gas and liquid transmission pipeline operators must maintain, modify as appropriate, and follow the plans, procedures and programs they are required to establish under Title 49 Code of Federal Regulations, Parts 192 and 195, respectively.

In addition, the Pipeline and Hazardous Materials Safety Administration has formed partnerships, funded research and programs, and has published supplementary documents to assist transmission pipeline operators, emergency response personnel, and others in developing an emergency response plan.

Owners and operators of areas covered under this practice, whether public or private, should inform area users of the transmission line operator's public awareness message as well as any specific site emergency plan required by local public authorities for the area.

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 101: Life Safety Code](#)
- [NFPA 102 Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures](#)
- [NFPA 5000: Building Construction and Safety Code](#)
- [International Code Council \(ICC\): International Building Code](#)
- [ICC: International Fire Code](#)
- [49 CFR 192.903, 49 CFR 195.450](#)

PIPA Report, November 2010

### **ND23 Consider Site Emergency Response Plans in Land Use Development**

**Practice Statement** Emergency response plan requirements should be considered in new land use development within a planning area (see PIPA Recommended [Practice BLO6](#)) to reduce the risks of a transmission pipeline incident.

**Audience** Local Government, Property Developer/Owner

#### **Practice Description**

Effective emergency response planning can reduce the risk of a potential transmission pipeline incident by providing for timely response and situational control. Site emergency response plans should include coordination with the transmission pipeline operator. The property developer/owner should consider emergency response needs when planning land use development in proximity to a transmission pipeline right-of-way to ensure that emergency response is not impeded during a pipeline incident. Emergency response requirements include but may not be limited to the following:

#### Access to shutoff valves

Transmission pipeline operator access to shutoff valve(s) ensures that the transmission pipeline can be shutoff to mitigate the impact (duration and volume of release) from a pipeline incident. Development plans should clearly indicate the access to transmission pipeline shutoff valves. Valve access routes should be coordinated with the transmission pipeline operators and should consider access to areas that may be locked or gated for security and privacy purposes (i.e. private or gated communities, secured facilities, etc.).

#### Access for emergency response personnel/equipment

Development plans should include emergency access and turnabouts, as needed. The emergency response access route should be of appropriate width to accommodate emergency response equipment. Street turnabouts should be of adequate turning radius to facilitate forward or reverse hose lays and/or exit of any emergency response equipment. Access routes should consider access to areas that may be locked or gated for security and privacy purposes (i.e. private or gated communities, secured facilities, etc.). Standards NFPA 1, "Fire Code", and International Fire Code provide minimum standards for the plans, construction, specifications, and maintenance of access routes for emergency responders.

#### Location/capacity of fire hydrants (as appropriate)

Although water is not typically used to extinguish flammable liquid or gas fires, it may be used to cool exposed structures to prevent a fire from spreading. If the possible use of fire hydrants is anticipated, their location and capacity should be evaluated to ensure that there are an adequate number of hydrants available, that they are located adequately, that they are of adequate capacity, and that they are maintained to be accessible and reliable. NFPA 1 and IFC provide minimum standards for the location and supply of fire hydrants.

#### Potential ICS, triage, and staging areas (as appropriate)

86

*PIPA Report, November 2010*

It may be beneficial to ensure that there is ample amount of room in the vicinity for incident command systems, triage, and staging areas. These may be included in the local government's master plans. (Some local governments develop master plans - long-range plans used to guide where and in what form physical development occurs in the community.)

It should be noted that transmission pipeline operators are required to provide emergency liaison and consultations by existing pipeline safety regulations. Gas and liquid transmission pipeline operators must maintain, modify as appropriate, and follow the plans, procedures and programs they are required to establish under Title 49 Code of Federal Regulations, Parts 192 and 195.

In addition, the Pipeline and Hazardous Materials Safety Administration has formed partnerships, funded research and programs, and has published supplementary documents to assist transmission pipeline operators, emergency response personnel, and others in developing an emergency response plan.

**References:**

- [NFPA 1: Fire Code](#)
- [NFPA 1141: Standard for Fire Protection Infrastructure for Land Development in Suburban and Rural Areas](#)
- [NFPA 1142: Standard on Water Supplies for Suburban and Rural Fire Fighting](#)
- [International Code Council: International Fire Code](#)
- [49 CFR 192.615 and 49 CFR 195.402](#)
- [Hazardous Materials Emergency Response Guide Bookwww.safepipelines.org](#)
- [www.pipelineemergencies.com](#)

*PIPA Report, November 2010*

**ND24 Install Temporary Markers on Edge of Transmission Pipeline Right-of-Way Prior to Construction Adjacent to Right-of-Way**

**Practice Statement** The property developer/owner should install temporary right-of-way (ROW) survey markers or fencing on the edge of the transmission pipeline ROW or buffer zone, as determined by the transmission pipeline operator, prior to construction to provide a clearly defined boundary. The property developer/owner should ensure that the temporary markers or fencing are maintained throughout the course of construction.

**Audience** Local Government, Property Developer/Owner

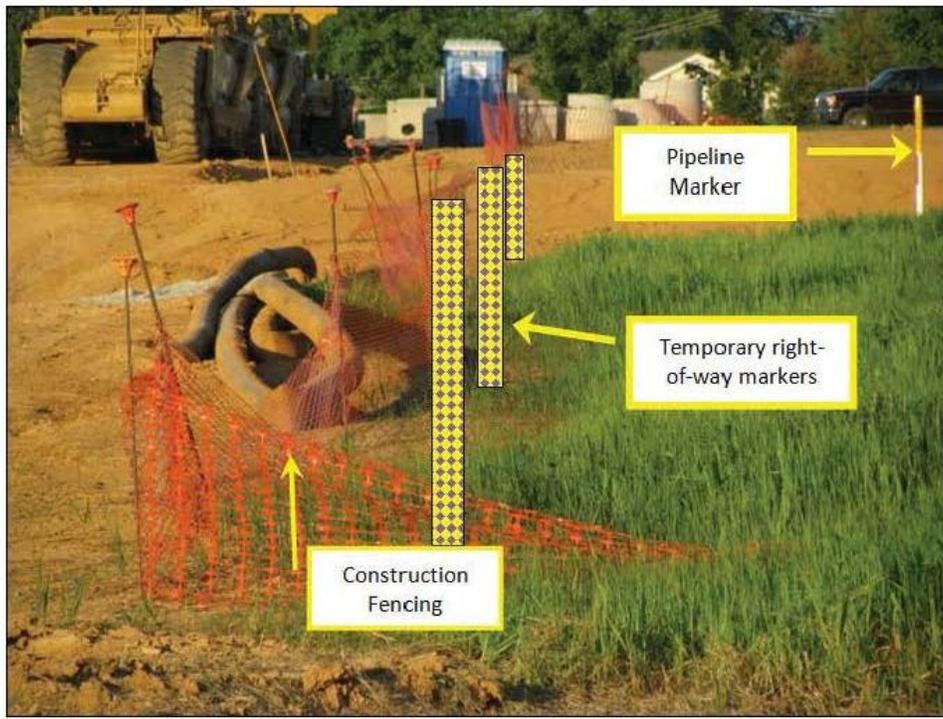
**Practice Description**

Excavators must always call the one-call center prior to beginning any excavation and must respect the locate marks showing where underground facilities are located.

In addition, to mitigate the risk of excavation damage or overburden to the transmission pipeline due to heavy construction equipment or material storage, temporary edge-of-the-ROW markers should be installed by the property developer/owner to alert construction personnel of the extent of the transmission pipeline ROW. Placing temporary ROW markers can enhance awareness of the presence of the pipeline and assist in visualizing the proximity of structures and landscaping to the edge of the pipeline ROW. Temporary fencing or temporary ROW markers can be used to mark the edge of the pipeline ROW. The ROW markers should be easily distinguishable from utility, survey and proposed excavation markers.

Local governments should consider the installation of the markers as a condition of the excavation permit. The markers should be installed before work begins and remain in place until construction is complete. The local government or other entity responsible for construction inspections could verify that the fencing is properly installed and maintained. (See example below.)

PIPA Report, November 2010



*Construction site adjacent to transmission pipeline right-of-way – Example of use of temporary right-of-way markers and construction fencing – The markers along the left edge of the right-of-way are temporary right-of-way markers. The other marker is a transmission pipeline marker which indicates the location of the pipeline within the right-of-way. Notice the concrete pipe and heavy equipment located outside the right-of-way.*

*PIPA Report, November 2010*

**ND25 Contact Transmission Pipeline Operator Prior to Excavating or Blasting**

**Practice Statement** Anyone planning to conduct excavating, blasting and/or seismic activities should consult with affected transmission pipeline operators well in advance of commencing these activities. Excavating and blasting have the potential to affect soil stability or lead to movement or settling of the soil surrounding the transmission pipeline.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

Transmission pipelines are dependent upon the stability of the surrounding soil to ensure that they are adequately supported and not over-stressed. Excavations (blasting, boring, digging, trenching, drilling, etc.), especially those that are deeper or down-gradient from a transmission pipeline, must be planned and conducted to ensure that they do not undermine the soil supporting the pipeline. Undermining of the soil can occur either at the time of the excavation or later due to soil subsidence or settling.

Notification of transmission pipeline operators through the one-call system is required prior to all excavations. Property developers/owners planning excavation or blasting should determine if transmission pipelines may be affected by the activities. If such pipelines are identified, the property developer/owner should coordinate with the transmission pipeline operator and provide information about the planned activities.

Appropriate local government agencies should be engaged in the permitting or licensing process for blasting, well in advance of the actual blasting operation, when transmission lines may be impacted. Transmission pipeline operators should be notified of the planned blasting operation as part of the permitting or licensing process by local government.

Seismic testing or land uses near transmission pipelines that involve regular or periodic blasting (e.g., quarrying, mining) may require enhanced communications and coordination between the property developer/owner and the transmission pipeline operator. During excavation or blasting activities, the transmission pipeline operator should continually evaluate any movement of the pipeline to ensure that acceptable stress levels in the pipeline are not exceeded.

**References:**

- [API RP 1117, Recommended Practice for Movement in In-Service Pipelines](#), 3rd Edition, 2008.
- [49 CFR 192.614](#)
- [Common Ground Alliance Best Practices](#)
- [www.call811.com](http://www.call811.com)

90

*PIPA Report, November 2010*

**ND26 Use, Document, Record and Retain Encroachment Agreements or Permits**

**Practice Statement** Encroachment agreements should be used, documented, recorded and retained when a transmission pipeline operator agrees to allow a property developer/owner or local government to encroach on the pipeline right-of-way for a long or perpetual duration in a manner that conflicts with the activities allowed on the easement.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

A property developer/owner, local government, or utility may desire to encroach on a transmission pipeline right-of-way (ROW) for a long or perpetual duration in a manner that conflicts with the activities allowed by the easement agreement. Examples of such encroachment activities or uses include but are not limited to street and road crossings, ornamental fencing, heavy equipment crossings, large diameter utility crossings, pipeline casing extensions, blasting or use of explosives in the vicinity of pipeline facilities, pipeline cathodic protection facilities, driveways, residential lines (water, sewer, television, electric), golf course, biking trail, fencing, and sprinkler systems.

The property developer/owner, local government or utility should contact the transmission pipeline operator and provide information about the proposed encroachment. Necessary information may include a legal description of the land, a description of the desired activity or use in the right-of-way, surveys, plans and drawings.

After the encroachments and acceptable uses of the right-of-way are agreed upon, they should be documented in an encroachment agreement by the landowner and the easement owner. Documenting the agreement will help ensure land use activities are not conducted in a manner that could be detrimental to pipeline integrity and public safety

Some examples of common terms and conditions that may be included in an encroachment agreement are: 1) location of said activity or use, 2) indemnity of the operator for damage arising from the encroaching activity or use, 3) operator right to remove landowner facilities for future pipeline construction or maintenance, 4) landowner activity or use must be in compliance with all laws and regulations, 5) transferability/binding nature of agreement to future landowners, 6) landowner financial responsibility, and 7) landowner abides by state one-call requirements.

Examples of special provisions a transmission pipeline operator may require involve: 1) depth of cover and prohibition of heavy equipment over the pipeline, 2) hand digging and hand compaction near pipeline, 3) exposure of pipeline if boring, and 4) minimum clearance of facilities from the pipeline.

Pipeline operator recording practices vary but the agreement should be recorded if the rights and obligation of the encroachment may be transferrable. Recording an encroachment agreement would also serve to make the agreement available to the public. An encroachment agreement identifies and provides notice of encumbrances attached to the property. Access to such records and information is necessary to identify issues that may arise in planning the development and changes in use of the land. Identification of acceptable land uses provides the opportunity to proactively resolve conflicts and

91

*PIPA Report, November 2010*

issues. Encroachment agreements should be retained by both parties for the duration of the encroachment.

**References:**

- [American Petroleum Institute \(API\) Recommended Practice \(RP\) 1162, Public Awareness Programs for Pipeline Operators](#)

*PIPA Report, November 2010*

**ND27 Use, Document and Retain Letters of No Objection and Conditional Approval Letters**

**Practice Statement** Transmission pipeline operators may use, document and retain "letters of no objection" in agreeing to land use activities on or near a transmission pipeline right-of-way. Such land uses may or may not be temporary.

**Audience** Local Government, Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

When agreements are executed between a property developer/owner and a transmission pipeline operator, a "letter of no objection" or a "conditional approval letter" confirms that the pipeline operator has reviewed certain land use and development plans provided by the property developer/owner and does not object to them. The operator's approval may be predicated on compliance to any conditions set forth in the letter of no objection. The document may provide details of allowable temporary land use, as well as the terms and conditions for such use.

In some cases, a letter of no objection may be included as a requirement in local government development regulations. A letter of no objection can serve to document that communication between the transmission pipeline operator and property developer/owner and/or local government planner has occurred early in the planning phase to help ensure that activities that could adversely affect transmission pipeline safety are identified.

Letters of no objection are generally not recorded but are retained by the operator.

*PIPA Report, November 2010*

**ND28 Document, Record and Retain Partial Releases**

**Practice Statement** Partial releases may be used to allow some part of the transmission pipeline right-of-way to be released from certain easement conditions, and should be documented, recorded and retained.

**Audience** Property Developer/Owner, Transmission Pipeline Operator

**Practice Description**

An existing transmission pipeline easement may encumber an area of the pipeline right-of-way that is not occupied by transmission pipeline facilities or is not needed to perform pipeline related activities now or in the future. If requested by the landowner, the transmission pipeline operator, at its discretion, may agree to nullify the easement to this part of the land through a "partial release". This may occur when a larger tract of land is subdivided and sold off to be developed.

A partial release allows land to be released from an easement that is no longer needed for the purposes of the easement. Partial releases should be recorded at the appropriate statutory office (i.e. county recorder, parish clerk) and retained for the life of the easement.

PIPA Report, November 2010

**Appendix A: PIPA Participants****Steering Group**

<b>Representative Participant</b>	<b>Representing</b>	<b>Position or Title at PIPA Inauguration</b>
Jack Alexander	NASFM	Kansas State Fire Marshal
Bruce Boncke	NAHB	President, BME Associates
Betty Dunkerley	NLC	Mayor Pro-Temp, Austin, TX
Stacey Gerard	PHMSA	Deputy Administrator and Chief Safety Officer
Lee Leffingwell	NLC	Mayor, Austin, TX
Lauren O'Donnell	FERC	Director, Division of Gas – Environment & Engineering Commissioner, Washington Utilities and Transportation Commission
Pat Oshie	NARUC	Retired
Richard Rabinow	Industry	Chairman, Washington Utilities and Transportation Commission
Mark Sidran	NARUC	
Julie Ufner	NACo	
Carl Weimer	PST	Executive Director, PST, and County Council Member, Whatcom County, WA
Jeff Wiese	PHMSA	Associate Administrator for Pipeline Safety

**PHMSA and Cycla Project Support**

<b>Representative Participant</b>	<b>Organization</b>
Benjamin Cooper	PHMSA
Kimbra Davis	PHMSA
Steve Fischer	PHMSA
Blaine Keener	PHMSA
David Spangler	PHMSA
Julie Galante	Cycla Corporation
Andy McClymont	Cycla Corporation
Herb Wilhite	Cycla Corporation
Paul Wood	Cycla Corporation

**Task Team 1 – Protecting Communities**

<b>Representative Participant</b>	<b>Organization</b>
Edward Abrahamson	TX RRC
Jack Alexander	NASFM
Glenn Archambault	PST
Douglas Ball	Township of Branchburg, NJ
Carolyn Berndt	NLC
Paul Biancardi	Pipeline Consultant
Bruce Boncke	BME Associates

1

## PIPA Report, November 2010

Kate Brady	Leon County, FL
Patrick Brady	El Paso
DeWitt Burdeaux	Quicksilver Resources, Inc.
Bill Byrd	Regulatory Compliance Partners (RCP) Inc.
Bruno Carrara	New Mexico Public Regulation Commission
Gerry Dawes	AGA
Galen Denio	Southwest Gas
Denise Desautels	PHMSA
Mark Dinneen	ICC
John Erickson	APGA
Tony Fleming	Clarke County, MS
Greg Ford	
<b>Task Team Co-chair</b>	Williams Gas Pipeline
Nick Hofmann	Atmos Energy Corporation
Kevin Hollins	Hollins Partners
Melissa Huffman	NAIOP
John Jacobi	PHMSA
David Johnson	Panhandle Energy
Andrew Kohout	FERC
Jim Krohe	Kinder Morgan
Lee Leffingwell	City of Austin, TX
Chuck Lesniak	NLC, City of Austin, TX
Catherine Little	Hunton & Williams
Maggie Manco	FERC
Joe Mataich	PHMSA
Rob McElroy	New Century Software
Nancy McNabb	NFPA
James Mergist	LA DNR
David Nemeth	Panhandle Energy & GITA
Alex Osborne	TransCanada
Jim Pates	PHMSA
Raymond Paul	AOPL
Cathy Pratt	
<b>Task Team Co-chair</b>	City of St Peters, MO
Richard Rabinow	PIPA Steering Committee
Bob Rackleff	Leon County, FL
Ross Reineke	PHMSA
Nelson Rivera	HUD
Bill Sanders	Explorer Pipeline
Steven Sandy	Montgomery County, VA
Buddy Secor	TSA
Julie Ufner	NACo
Russell Verba	IRWA

PIPA Report, November 2010

**Task Team 2 – Protecting Transmission Pipelines**

<b>Representative Participant</b>	<b>Organization</b>
Pamela Alley	Shell Pipeline Company LP
Eric Amundsen	Panhandle Energy
Bob Archey	PST
Thais Austin	NAHB
<b>Task Team Co-chair</b>	
Darin Burk	Illinois Commerce Commission
Alex Dankanich	PHMSA
Reid Demman	Salt Lake County, UT
Kevin Docherty	Buckeye Partners
Ruth Garcia	Buckeye, AZ
John Garrison	ConocoPhillips Pipe Line
Robert Hill	Brookings County, SD
Duane Hobart	Explorer Pipeline
Patrick Hodgins	Genesis Energy, Inc.
Jeannette Jones	DCP Midstream
Neal Jones	ONEOK NGL Pipeline
Benjamin Kanoy	Vectren
John Lupo	Xcel Energy
David Lykken	Washington Utilities and Transportation Commission
Paul Maldonado	Texas SFM Office
Terry Mock	Colonial Pipeline
Daron Moore	El Paso Pipeline Group
Nate Muehl	Marathon Pipe Line LLC
Steve Patton	Williams Gas Pipeline
<b>Task Team Co-chair</b>	
Rick Pevarski	VUPS
Julia Pulidindi	NLC
Elizabeth Reed	Columbia Gas Transmission Corp
Lindsay Sander	Texas Pipeline Association
James Sanford	NuStar Energy LP
Randy Smith	Southwest Gas Corporation
Narasi Sridhar	DNV CC Technologies
Dave Swearingen	FERC
Alaine Watson	Environmental Protection Commission, Hillsborough County, FL
Kyle Webster	Enterprise Products
Lois Wells	Koch Pipeline Company LP
Harold Winnie	PHMSA
Monty Zimmerman	APWA

**Task Team 3 - Communications**

<b>Representative Participant</b>	<b>Organization</b>
Debbie Bassert	NAHB
Terry Boss	INGAA

PIPA Report, November 2010

Karen Butler	PHMSA
David Clouser	Township Manager, Lancaster (PA) Township
Thomas Correll	Northern Natural Gas
James Davenport	NACo
Gerry Dawes	AGA
Jim Doherty	Municipal Research & Services Center
Patty Errico	ExxonMobil Pipeline Company
Neil Fuchs	Marathon Pipe Line LLC
Rebecca Garber	AOPL
Danny Gibbs	
<b>Task Team Co-chair</b>	Spectra Energy
Gina Greenslate	Panhandle Energy
Jim Hartman	Tennessee Gas Pipeline
Kevin Hollins	NAIOP
Cindy Ivey	Williams Gas Pipeline
David Jones	David Jones Group LLC
Jungus Jordan	City of Fort Worth, TX
Michelle Joseph	Smalley Foundation
Lori Keeter	EPCO, Inc.
Jerry Kenerson	PHMSA
Gary Kent	American Land Title Association
Bob Kipp	CGA
Terri Larson	Enbridge
Erika Lee	CGA
Brett Lester	Celeritas
Ryan Martin	Texas Excavation Safety System
Dan Maschka	Northern Natural Gas
David McAtee	DCP Midstream
Frank McGarry	NASFM
Steve McNulty	TransCanada US Pipelines West
Gina Meehan	Ameren
Jerry Milhorn	Kinder Morgan
Cynthia Munyon	
<b>Task Team Co-chair</b>	Iowa Utilities Board
Claudia Rapkoch	NorthWestern Energy
Russell Riggs	NAR
Greg Saia	Xcel Energy
Larry Schall	APWA
Larry Springer	Enbridge
Jon Taylor	Sempra Energy Utilities
Eric Tomasi	FERC
Carl Weimer	Pipeline Safety Trust
Bob Weiner	NACo
Leslie Wollack	NLC
Michael Wood	PECO Energy Company
Jeff Zidonis	Dominion East Ohio

*PIPA Report, November 2010***Other Participants**

<b>Representative Participant</b>	<b>Organization</b>
Patrick Brady	El Paso Corporation
Paul Connor	NALGEP
Gerry Dawes	AGA
Jim Fahey	APWA
Belinda Friis	TransCanada
Melissa Huffman	NAIOP
Jennifer Imo	NATaT
Peter Lidiak	API
Laurie Markoe	Contract Land Staff, LP
Chris Mason	Williams Gas Pipeline
Edward Miller	American Land Title Association
Shirley Neff	AOPL
Raymond Paul	AOPL
Laurie Reichler	Southern California Gas Co
Charles Schroeder	Lincoln-Lancaster County Health Department
Antoinette Sebastian	HUD
Karen Simon	API
Douglas Sipe	FERC
Mike Stackhouse	OneOK
Matt Ward	NATaT
Brad Watson	TransCanada

APPENDIX B*PIPA Report, November 2010***Appendix B: Model Ordinance**

The following model ordinance may be used by cities or other jurisdictions with planning authority (e.g., counties, townships, villages) as a starting point for development of an ordinance to incorporate or promote recommended practices for protecting communities and underground utility infrastructure. Although the model ordinance as written refers directly to transmission pipelines located in a *city*, it may be used by other jurisdictions (with appropriate changes). It is expected that each specific jurisdiction would change the text of the ordinance to fit the circumstances of that jurisdiction.

APPENDIX B

*PIPA Report, November 2010*

Bill No. \_\_\_\_\_

ORDINANCE NO. \_\_\_\_\_

AN ORDINANCE PROVIDING FOR MINIMUM REQUIREMENTS PERTAINING TO LAND USE,  
CONSTRUCTION, AND PUBLIC SAFETY NEAR GAS TRANSMISSION AND/OR HAZARDOUS  
LIQUID TRANSMISSION PIPELINES WITHIN THE CITY

WHEREAS, the United States economy is heavily dependent on gas transmission and  
hazardous liquids pipelines to transport and distribute energy and raw materials; and

WHEREAS, gas transmission and/or hazardous liquid transmission pipelines extend  
through portions of the City of; and

WHEREAS, these pipelines, if ruptured or damaged, may pose a risk to public safety  
and/or the environment; and

WHEREAS, new development in proximity to pipelines should incorporate design  
features to minimize possible public safety and/or environmental risks; and

WHEREAS, the [Board of Aldermen] [City Council] wishes to minimize risk of rupturing or  
damaging these pipelines; and

WHEREAS, the National Transportation Safety Board has recognized that third-party  
damage and pipeline right-of-way encroachment are significant threats to pipeline safety; and

WHEREAS Title 49, Code of Federal Regulations, Parts 192 & 195 provide regulations for  
transmission pipelines; and

WHEREAS, the City has been encouraged by the U.S. Department of Transportation to  
adopt policies and regulations intended to reduce the likelihood of accidental damage to gas  
and hazardous liquid pipelines and to reduce adverse impacts of pipeline failures located within  
its jurisdiction; and

WHEREAS, the City desires to amend the City Code by adopting policies and regulations  
intended to reduce the likelihood of accidental damage to the gas and hazardous liquid pipelines  
and to help reduce adverse impacts in the event of a pipeline failure; and

[WHEREAS, the City held a Public Hearing on these proposed City Code amendments;  
and]

[WHEREAS, at the Public Hearing, all interested persons and citizens were given an  
opportunity to be heard on these proposed amendments to the City Code; and]

APPENDIX B

PIPA Report, November 2010

**NOW THEREFORE, BE IT ORDAINED BY THE [BOARD OF ALDERMEN] [CITY COUNCIL]  
OF THE CITY OF \_\_\_\_\_, AS FOLLOWS:**

**SECTION 1.** That Section of the City Code shall be and is hereby amended by adding the following definitions:

**CONSULTATION ZONE** means an area within \_\_\_\_\_ feet of a transmission pipeline. See Section 2 below. [Refer to PIPA Recommended Practice BL05.]

**DEVELOPMENT PERMIT** means, for the purposes of the consultation zone requirements, any permit for activity that involves construction, grade modification, excavation, blasting, land clearing, or the deposit of earth, rocks or other materials that places an additional load upon the soil. Construction that involves work totally within an existing building footprint, such as residential remodeling projects, is specifically exempted from these consultation zone requirements.

**GAS TRANSMISSION PIPELINE** means a “transmission line” as defined by Title 49, Code of Federal Regulations, Section 192.3.

**HAZARDOUS LIQUID PIPELINE** means a pipeline designed for the transmission of a “hazardous liquid”, as defined by Title 49, Code of Federal Regulations, Section 195.2.

**PERSON** means any individual, firm, joint venture, entity, partnership, corporation, association or cooperative.

**PIPA REPORT** means a report prepared by the U. S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) through the Pipelines and Informed Planning Alliance (PIPA) initiative with support from many participating stakeholders. The report was initially released in 2010 and will be updated as needed. It is available on the PHMSA Pipeline Safety Stakeholder Communications web site at <http://primis.phmsa.dot.gov/comm/>.

**PIPELINE** means the same as is defined by Title 49, Code of Federal Regulations, Sections 195.2 and 192.3.

**PIPELINE FACILITY** means the same as is defined by Title 49, Code of Federal Regulations, Sections 195.2 and 192.3.

**PLANNING AREA** means an area around a transmission pipeline that is defined, based on characteristics of the pipeline and the surrounding area, to determine where the requirements of Section 6 below apply. [Refer to PIPA Recommended Practice BL06.]

APPENDIX B

PIPA Report, November 2010

TRANSMISSION PIPELINE means gas transmission pipeline or hazardous liquid pipeline as defined above.

**SECTION 2.** That Section \_\_\_\_\_ of the City Code shall be and is hereby amended by adding Subsection thereto, which Subsection shall read as follows:

**CONSULTATION ZONE****a. Consultation Zone Distance**

A consultation zone is hereby established for any parcels within \_\_\_\_\_ feet of the centerline of a transmission pipeline. [Refer to PIPA Recommended Practice BL05.]

**b. Consultation Zone Notification**

At application for a development permit, staff at the permit counter shall notify the individual they are within the consultation zone, explain the relevant application procedures, and provide contact information for the applicable pipeline operator(s). This same procedure shall be followed whenever an individual inquires about development regulations or zoning restrictions for property within the consultation zone.

**c. Application Process within Consultation Zone**

Complete application for development permit within a designated consultation zone must include written verification from applicant that:

1. Applicant has contacted the pipeline operator(s) and has provided them with documentation detailing the proposed development type and place of the activity; and
2. The pipeline operator(s) has reviewed the documents.
3. The written verification required by this section can be in any form acceptable to the City, including electronic communications, so long as it is clear that the pipeline operator(s) has received and reviewed documentation showing the proposed information concerning any impact the activity will have upon the integrity of the transmission pipeline(s). The verification should include all comments received from the operator or a notice from the operator indicating that the operator has no comments.
4. If the operator does not respond within 30 days after being contacted and provided information by the developer pursuant to c.1 above, then the City may waive the requirement for written verification given under c.3 above.

**SECTION 3.** That Section \_\_\_\_\_ of the City Code shall be and is hereby amended by adding Subsection thereto, which Subsection shall read as follows:

APPENDIX B

PIPA Report, November 2010

**PLANNING AREA****a. Planning Area Distance**

Planning areas are hereby established within the following distances of the pipeline centerlines, for the following transmission pipeline(s).

Pipeline A – YYY feet

Pipeline B – ZZZ feet

Pipeline C –Etc. [See PIPA Report Recommended [Practice BLO6](#)]

**b. Applicability of Planning Area**

At application for a development permit, staff at the permit counter shall notify the individual they are within the planning area and explain the relevant requirements.

Development within the planning area shall meet the requirements under Section 6 below.

**SECTION 4.** That Section \_\_\_\_\_ of the City Code shall be and is hereby amended by adding Subsection thereto, which Subsection shall read as follows:

The plat must provide a note that all existing gas transmission and/or hazardous liquid pipelines or pipeline facilities through the subdivision have been shown, or that there are no known existing gas transmission and/or hazardous liquid pipelines or pipeline facilities within the limits of the subdivision.

The location of all transmission pipelines and related easements shall be shown on all preliminary plat, zoning, building, and record plat maps when proposed development is within the planning area.

For proposed development within the consultation zone around pipeline(s), developer shall forward all site or subdivision plans for review comments to the Pipeline Operators by certified mail, return receipt requested, to be supplied to the City as proof of notification prior to plan approval.

**SECTION 5.** That Section \_\_\_\_\_ of the City Code shall be and is hereby amended by adding Subsection thereto, which Subsection shall read as follows:

*[Insert selected PIPA Recommended Practices for protecting transmission pipelines]*

**SECTION 6.** That Section of the \_\_\_\_\_ Code shall be and is hereby amended by adding Subsection thereto, which Subsection shall read as follows:

APPENDIX B

PIPA Report, November 2010

*[Insert selected PIPA Recommended Practices ND11 through ND23, as appropriate, indicating requirements within the planning area]*

**SECTION 7. Severability.** If any term, condition, or provision of this Ordinance shall, to any extent, be held to be invalid or unenforceable, the remainder hereof shall be valid in all other respects and continue to be effective and each and every remaining provision hereof shall be valid and shall be enforced to the fullest extent permitted by law, it being the intent of the Board of Aldermen (or City Council) that it would have enacted this Ordinance without the invalid or unenforceable provisions. In the event of a subsequent change in applicable law so that the provision that had been held invalid is no longer invalid, said provision shall thereupon return to full force and effect without further action by the City and shall thereafter be binding.

**SECTION 8. Effective Date.** This Ordinance shall be in full force and take effect from and after the date of its final passage and approval.

**SECTION 9. Savings.** Nothing contained herein shall in any manner be deemed or construed to alter, modify, supersede, supplant or otherwise nullify any other Ordinance of the City or the requirements thereof whether or not relating to or in any manner connected with the subject matter hereof, unless expressly set forth herein.

Read two times and passed this \_\_\_\_ day of \_\_\_\_\_, 2\_\_\_\_.

\_\_\_\_\_  
As Presiding Officer and as Mayor

Attest: \_\_\_\_\_  
City Clerk

Approved this \_\_\_\_ day of \_\_\_\_\_, 2008.

\_\_\_\_\_  
Mayor

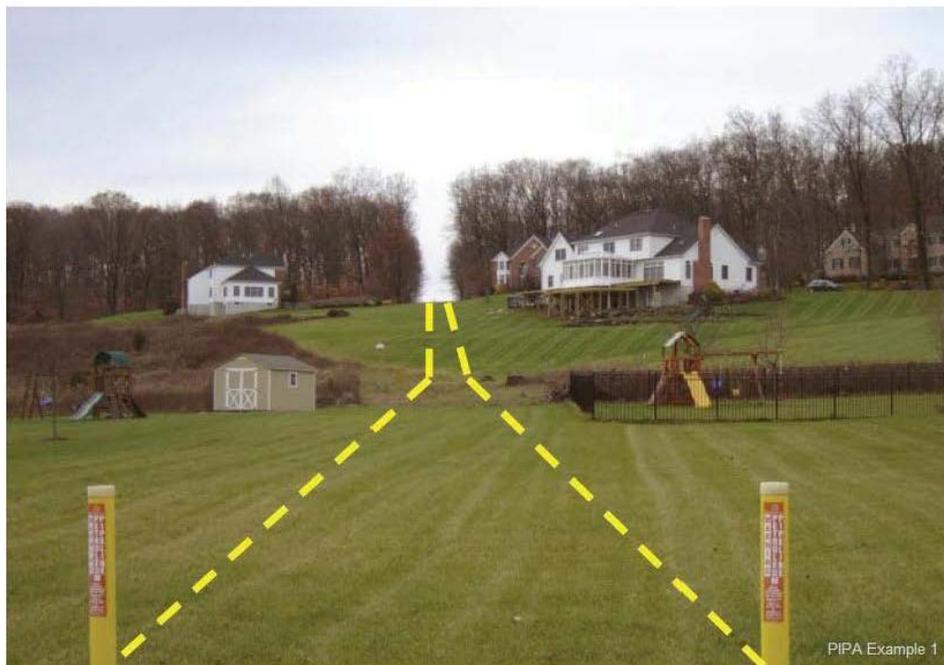
Attest: \_\_\_\_\_  
City Clerk

APPENDIX C*PIPA Report, November 2010***Appendix C: Incorporating Transmission Pipeline ROW in New Developments****Rural, Suburban and Urban**

The following pictures provide examples of successful, collaborative efforts to incorporate transmission pipeline rights-of-way (ROW) into developments, as well as some situations to avoid. Since ROW practices vary among transmission pipeline operators, activities that may not be acceptable to some operators are noted in each picture's description. The dashed yellow lines indicate the approximate location of the transmission pipeline in each picture.

APPENDIX C*PIPA Report, November 2010***Example 1 – Rural: Green Space Development**

This picture illustrates development that commonly occurs as suburbs extend into rural areas. This transmission pipeline right-of-way is clearly defined yet blends with the surrounding area. The shed and playground are outside the right-of-way but the landowners are able to enjoy its use of the land.



APPENDIX C*PIPA Report, November 2010***Example 2 – Rural: Agricultural**

The use of the transmission pipeline rights-of-way to grow crops is important for farmers to optimize use of the land. Seasonal crops such as corn, soybeans and cotton may be grown in the pipeline right-of-way. However, deep tilling, certain other farming practices and erosion may damage the transmission pipeline and should be discussed with the pipeline operator.

Example 2a

APPENDIX C

*PIPA Report, November 2010*

Example 2b



PIPA Example 2b

APPENDIX C*PIPA Report, November 2010***Example 3 – Rural: Bridge crossing**

The aboveground transmission pipeline creek crossing was modified to accommodate a pedestrian bridge connecting walking trails. The transmission pipeline indicated in these pictures is located between the girders under the walkway.

Example 3a

APPENDIX C

*PIPA Report, November 2010*

Example 3b



APPENDIX C*PIPA Report, November 2010***Example 4 – Rural: Soft Surface Walking Trail**

This rural transmission pipeline right-of-way has been transformed into a soft surface walking trail. The soft surface is beneficial for unimpeded access to the pipeline facilities. Trees are outside of the right-of-way and clearly define it. The bench is an example of an encroachment that may be acceptable to some transmission pipeline operators but not to others.



APPENDIX C

PIPA Report, November 2010

**Example 5 – Suburban: Shared utility corridor with asphalt walking path**

As development encroaches on previously rural areas, land for utilities becomes scarcer. At times, multiple utilities may share a single utility corridor. In shared right-of-way space, the need for coordination increases. The additional facilities create the potential for cathodic interference and increase the potential for excavation damage to facilities. This photo illustrates a transmission pipeline right-of-way that is shared with an electric utility and a hard surface walkway. Some transmission pipeline operators only allow soft surface walkways on the right-of-way. The tree is an example of landscaping that generally would not be allowed in the transmission pipeline right-of-way.



APPENDIX C

*PIPA Report, November 2010*

**Example 6 – Suburban: Green space**

This transmission pipeline right-of-way is clearly defined, free of large vegetation, and easily accessible by the pipeline operator. Fences have been placed parallel but outside of the right-of-way.



APPENDIX C

PIPA Report, November 2010

**Example 7 – Suburban: Walking Trail**

The trees have been planted inside the transmission pipeline right-of-way and should be removed. Lighting for the path should be located outside of the right-of-way.



APPENDIX C

PIPA Report, November 2010

**Example 8 – Suburban: Green space**

Note that the gate is large enough for right-of-way maintenance vehicles, is removable, and does not obstruct the view of the right-of-way for patrolling by the transmission pipeline operator.

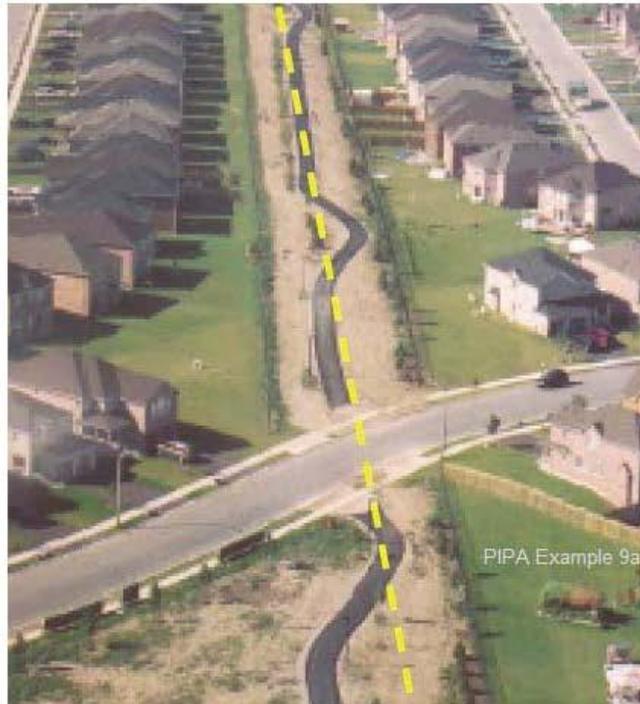


APPENDIX C

*PIPA Report, November 2010*

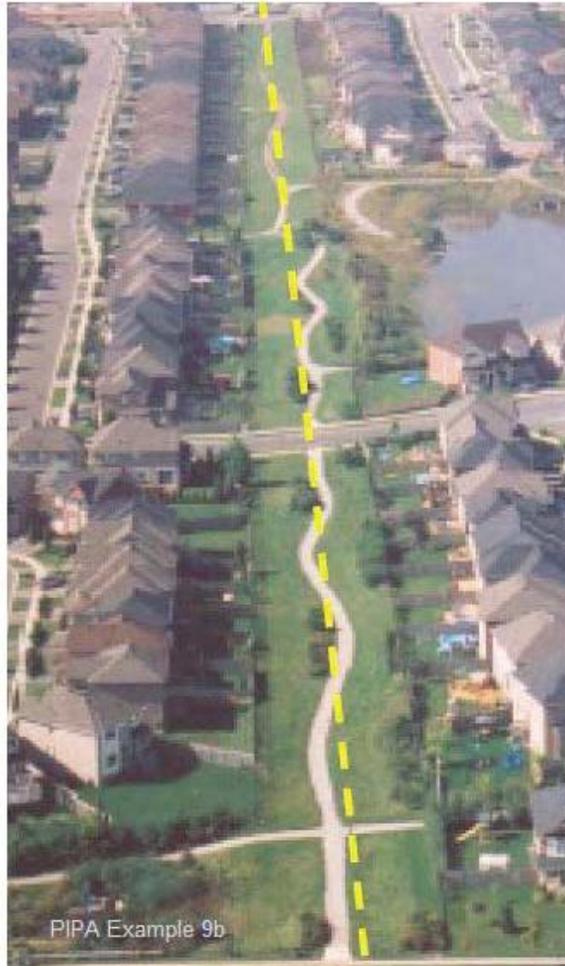
**Examples 9a, 9b and 9c – Suburban: Walking Trails**

Walking trails are a popular option for enhancing a community. Trees and lighting should be placed outside of the transmission pipeline right-of-way.



APPENDIX C

*PIPA Report, November 2010*



APPENDIX C

*PIPA Report, November 2010*



APPENDIX C*PIPA Report, November 2010***Example 10 – Suburban: Formal garden with shallow rooted plantings**

The transmission pipeline operator may need to remove some of the plantings to access the pipeline. An encroachment agreement should address restoration. The bench is free standing. A transmission pipeline marker is located in an open space near the path that traverses the right-of-way.

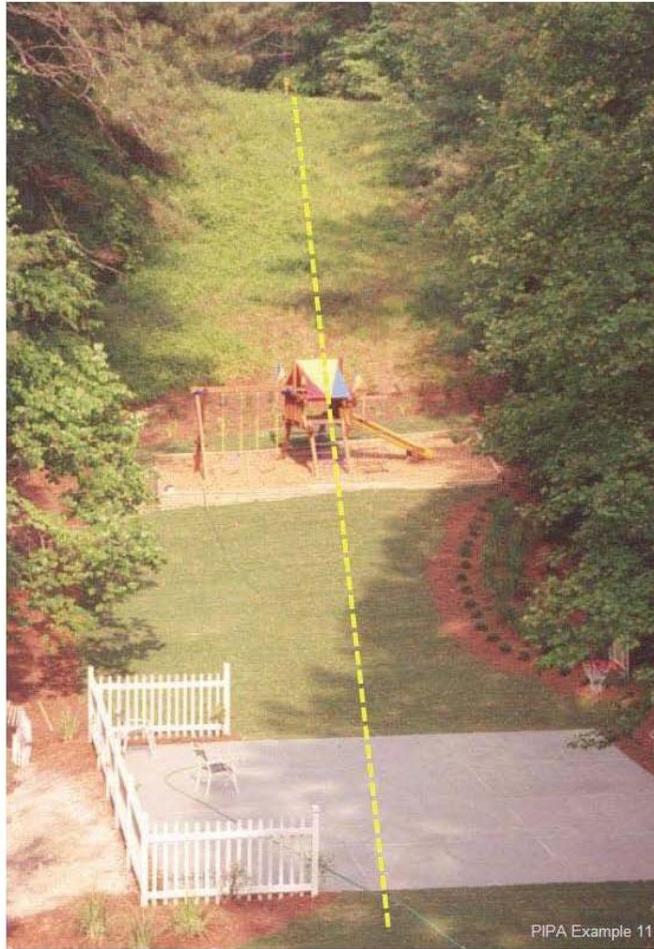


APPENDIX C

PIPA Report, November 2010

**Example 11 – Suburban: Playground equipment and removable sport court**

While free standing playground equipment or removable equipment such as the sport court with removable panels may be acceptable, this swing set should not be allowed because the footings may be deep enough to reach the transmission pipeline and the swing set is not easily movable in case emergency access to the right-of-way is needed. The fence along the basketball court also should not be allowed for the same reason.



APPENDIX C*PIPA Report, November 2010***Example 12 – Urban: Formal garden with shallow rooted plants.**

This is a good example of land owner and operators working together. The transmission pipeline right-of-way marker is not visible in this picture. Some pipeline markers lie flat to the ground. The signs promote awareness of the presence of the transmission pipelines.



APPENDIX C*PIPA Report, November 2010***Example 13 – Urban: Church**

The church shown in this picture is situated on the opposite side of the lot, as far as possible from the transmission pipeline. The shrubbery should be cut back further around the pipeline marker.



APPENDIX C

PIPA Report, November 2010

**Example 14 – Trees in the right-of-way**

This is an example of development on the transmission pipeline right-of-way that **should be avoided**. This tree was planted in the right-of-way between two transmission pipelines. It may impede access to the right-of-way and the pipelines. Fortunately, the transmission pipelines were not damaged during planting.



APPENDIX C

PIPA Report, November 2010

**Examples 15a, 15b and 15c – Tree roots may damage transmission pipelines.**

These pictures illustrate situations on the transmission pipeline right-of-way that ***should be avoided***.

These pictures illustrate why trees should not be allowed in the right-of-way. The tree roots have impeded the pipeline operator's ability to access and evaluate the condition of the transmission pipeline. Pipeline coatings may also be damaged by tree roots. Coatings need to remain intact to protect the transmission pipeline from external corrosion.



20

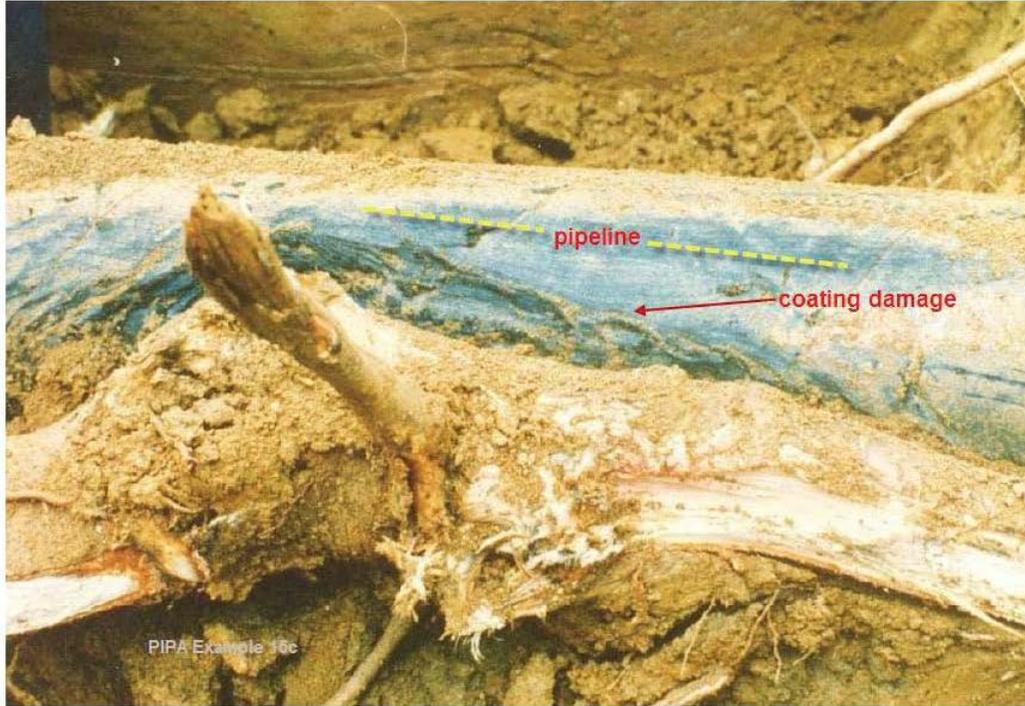
APPENDIX C

*PIPA Report, November 2010*



APPENDIX C

PIPA Report, November 2010



APPENDIX C*PIPA Report, November 2010***Examples 15d, 15e and 15f – Tree Roots May Damage Transmission Pipelines**

These additional pictures also illustrate why trees should not be allowed in the right-of-way. They show indirect tree root damage caused by lightning striking a tree whose roots were close to the pipeline. The lightning passed down the tree and through the wet clay. The moisture in the clay instantly vaporized. In the region where the current passed through the soil, an instant and violent expansion of the moisture in the soil occurred creating the crater in the ground around the perfectly smooth dent in the top of the pipe. The resulting tension in the pipeline initiated a crack in a girth weld a few feet away.



APPENDIX C

*PIPA Report, November 2010*



APPENDIX C

*PIPA Report, November 2010*



APPENDIX C

PIPA Report, November 2010

**Example 16 – New Development Built to the Edge of the Right-of-Way**

*This picture illustrates a situation on the transmission pipeline right-of-way that **should be avoided**.*

Example of impact of transmission pipeline maintenance on development built in close proximity to the edge of the pipeline right-of-way. Structures adjacent to the ROW, such as the wooden fence, have been damaged as a result of the limited amount of workspace for large equipment.



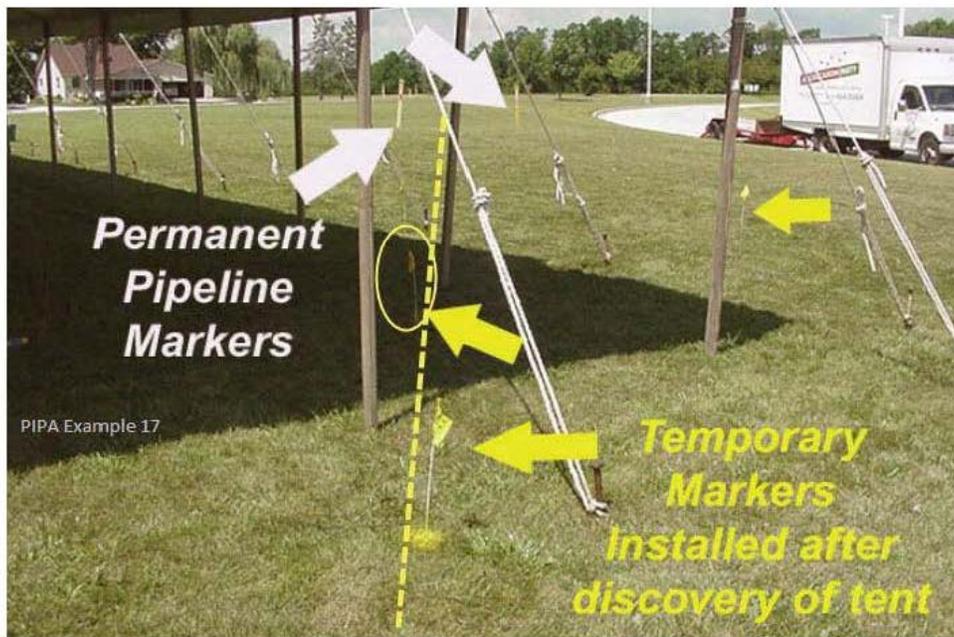
APPENDIX C

PIPA Report, November 2010

**Example 17 – Temporary Structures in the Right-of-Way**

*This picture illustrates a situation on the transmission pipeline right-of-way that **should be avoided**.*

This picture illustrates the need to contact the transmission pipeline operator prior to changing the use of a pipeline right-of-way. A hospital engaged a company to set-up a large tent. The ROW contained two transmission pipelines that pre-date construction of the hospital, a 10-inch active line and an 8-inch idle line. There are several permanent pipeline markers on the lawn. The tent was set up without notification to the transmission pipeline operator and without a one-call locate request being placed. The pipeline operator determined that a 42-inch long tent stake was driven into the ground within 5-inches of one of the pipelines, but there was no damage to the pipelines. The tent was relocated out of the right-of-way. The tent company was instructed to call the one-call center in the future and was given pipeline awareness materials.



APPENDIX D

PIPA Report, November 2010

**Appendix D: Proposed Land Uses for Transmission Pipeline ROW**

**Guidance in Determining if Proposed Land Use of the Right-of-Way is Acceptable**

The purpose of this table is to increase awareness and encourage early communication among key stakeholders when considering changes to an existing land use or new land use development on an existing transmission pipeline right-of-way (ROW). This table should not be interpreted as guidance for the construction of new pipelines amongst existing land uses as they may require different considerations or limitations. Managing land use activities is a challenge for all stakeholders. Land use activities can contribute to the occurrence of a transmission pipeline incident and expose those working or living near a transmission pipeline to harm should an incident occur.

This table provides a list of common land use activities and is only meant to provide guidance to help in determining whether the proposed land use is acceptable or not. There will be variances in the application of these rules from operator to operator based on site-specific conditions, operator practices, and evolving safety regulations and concerns. Therefore, this table should be referenced only for general informational purposes. Stakeholders should consult with the appropriate pipeline operator for acceptable land uses within a pipeline ROW.

Encroachment agreements are encouraged to ensure communication occurs and all parties have appropriate and complete information. Most ROW agreements address potential disturbance of the ROW for pipeline repairs. The need to disturb the right-of-way may factor into the acceptability of a use or activity.

Use/Activity	Acceptable Use or Activity?	Additional Restrictions or Comments	Origin/ Rationale for Determining Acceptable Activity
Agriculture - (Seasonal Agricultural Crops - excludes orchards and vineyards)	Yes, but consent is required	Activities related to the growing of crops or the raising of animals need no consent, provided the activity does not involve installation of permanent structures or an increase or decrease in the cover over the transmission pipeline. Facilities such as underground and overhead irrigation systems must be reviewed for compatibility.	With prior approval from the transmission pipeline operator, grass and certain types of shrubs or seasonal crops may be permitted within the right-of-way (ROW), provided that the plantings do not interfere with the maintenance, inspection and operation of the pipeline and related facilities.

APPENDIX D

PIPA Report, November 2010

Use/Activity	Acceptable Use or Activity?	Additional Restrictions or Comments	Origin/ Rationale for Determining Acceptable Activity
Airstrip - Private (perpendicular crossing to pipeline)	Yes, but consent is required	Permission to use the ROW for an airstrip may be granted, provided it is for the private use of the property owner, and does not involve any increase or decrease in the cover over the pipeline or the installation of any permanent structures, including paving, on the ROW.	These airstrips are considered to be dirt. This use can lead to a decrease in ground cover.
Airports - Public	No		These runways are constructed of concrete. Therefore, the need for access for transmission pipeline maintenance and emergency response activities preclude this use. In addition, most airports have restricted access for security reasons.
All-Terrain Vehicle (ATV) Use	No	Occasional use such as farm equipment may be acceptable.	This use can lead to a decrease in ground cover.
Athletic Stadium (e.g., baseball field, football field, running tracks, etc.)	No		Even fields with no permanent structures may define the area as a high consequence area (HCA), thus imposing additional integrity management requirements for the gas transmission pipeline operator.
Automobile Wrecking Yards	No		Access for transmission pipeline maintenance and emergency response activities preclude this use.
Bioretention Cell	No		Access for transmission pipeline maintenance activities preclude this use

APPENDIX D

PIPA Report, November 2010

Use/Activity	Acceptable Use or Activity?	Additional Restrictions or Comments	Origin/ Rationale for Determining Acceptable Activity
Blasting	No	Not allowed on easements or fee land where any transmission pipeline facilities are installed. Exceptions are for construction of another approved activity, subject to pipeline operator’s engineering review for technique, size of holes, spacing, etc.	Blasting activities may cause stresses on nearby transmission pipelines which may lead to leaks.
Buildings	No	No type of permanent structure permitted. See also “Structures”.	No structures are allowed because they interfere with emergency response, maintenance, inspection, and repair activities.
Campsites	No		This use may impose additional integrity management requirements for the transmission pipeline operator. In addition, no fires would be allowed for safety reasons.
Canals (For irrigation purposes)	Yes, but consent is required	Canals or ditches may be allowed to be built across the ROW provided adequate precautions are taken to protect transmission pipeline facilities. Plans must be approved by the pipeline operator’s engineering or operations.	This use is categorized as being for irrigational purposes only. Canals must be constructed in a manner to allow for maintenance, inspection, and emergency response activities to occur.
Canopies / temporary (Categorized as party tents, canvas awnings, or portable coverings for group gatherings)	No		This use could involve driving large stakes into the ground near the transmission pipeline, exposing it to potential damage and future leaks.