

Report

Land Use Planning In Proximity to Natural Gas and Hazardous Liquid Transmission Pipelines in Washington State

June 2006

Final

LAND USE PLANNING IN PROXIMITY TO NATURAL GAS AND HAZARDOUS LIQUID TRANSMISSION PIPELINES

FOREWORD

Natural gas or hazardous liquid transmission pipelines run through 28 Washington counties and 119 cities. They lie buried at varying depths, carrying a range of volatile products and cross through a variety of land uses --from agriculture to urban centers.

The presence of a major pipeline forms a relationship between the pipeline operator, safety regulators, local government, property owners and developers. How this relationship is managed can affect directly the safe operation of the pipeline and consequently the public health and safety of the surrounding community.

- Pipeline operators are required under federal and state law to adopt and follow safety procedures for maintenance and operation of their pipeline.
- The federal Office of Pipeline Safety and the Washington Utilities and Transportation Commission pipeline safety program monitor and enforce these safety regulations.
- Property owners with easements held by pipeline operators must abide by the easement agreement.
- Developers, along with everyone else, have an obligation under state law to contact the 'one-call' utility locating service before any excavation.
- Local governments may have franchise agreements with pipeline operators. They also issue permits for work the operator may need to do in the community.

None of these relationships, however, speaks directly to managing land use activities which can contribute to the occurrence of a pipeline incident and the exposure to harm of those living and working near a pipeline in the event of an incident. While pipeline safety involves a great many components and players, the procedural processes used to review proposed land use actions are the one area in which local governments can exert the most influence in protecting health and safety of its citizens.

Incidents involving hazardous liquid and transmission natural gas pipelines are rare but unfortunately do occur. These incidents can have a deadly and damaging effect as happened in Whatcom Creek when three young people were killed as a result of a petroleum pipeline leak. There have been nine other incidents involving hazardous liquid and natural gas transmission pipelines in Washington since the 1999 incident. While these more recent incidents did not result in injury or death, they caused roughly \$2.5 million in damage. Several of the incidents could have caused injury had they occurred in more densely populated areas.

Most of the over 3,200 miles of transmission pipelines in Washington were constructed in farmland bypassing urban areas. However, to accommodate population and economic growth,

land areas once considered rural are being absorbed into expanding urban growth areas and developed to urban uses. Nine of the state's 10 fastest growing counties are home to almost half of the state's major pipeline mileage. This growth means more and more people are working and living near major pipelines. Increases in population and land use activity expand the risks of pipeline damage and raise the stakes in the event of a pipeline incident. The pictures in Figures 1 and 2 below were taken of the same area in Washington State – 12 years apart.

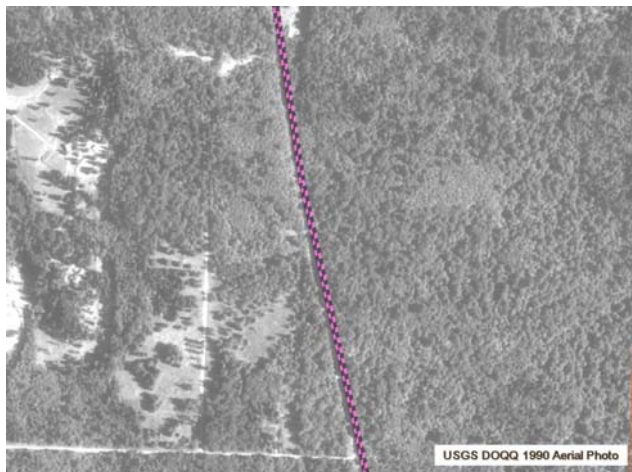


Figure 1 - 1990



Figure 2 - 2002

Pipeline safety and environmental regulations have generally focused on the design, operation and maintenance of pipelines and incident response. They have not directed significant attention to the manner in which land use decisions in proximity to pipelines can affect public health and safety.

In 2004 and 2005, a group of city, county, state and industry representatives conducted a series of workshops throughout the state for local government officials, particularly staff from the planning, permitting and public works sections. The purpose of these workshops was to exchange ideas and explore the range of tools available to manage and make effective decisions concerning land use in proximity to transmission pipelines.

No "silver bullet" was found which can satisfy all the needs of our state's diverse set of communities. However, a common theme emerged along with a range of tools which can help local governments take an active role in pipeline safety. The common theme is straightforward but not necessarily easy: communication. More specifically, there is a demonstrated need to ensure that land use decisions and land development activities occurring within the vicinity of transmission pipelines are informed by early (i.e., pre-planning) consultation with pipeline operators, local government and developers.

Effective communication can result in decisions which reduce the probabilities and consequences of transmission pipeline incidents.

Who should read this report?

This report is for local government decision-makers and administrators, especially those involved in land use planning and permitting. However, all parties affected by land use adjacent to pipelines should review this report. They include:

- Planners
- Elected and appointed officials
- Pipeline Operators
- Developers & Builders
- Public Works Directors
- Design professionals
- Emergency Management Department managers
- Health departments
- Community organizations
- Property owners

What's in and not in this report

This report is focused on land use in proximity to existing pipelines. The appendices and reference documents associated with this report deal with the details of many of the issues and provide some thoughts on options that can be used in managing the relationships among stakeholders.

This report does not deal with issues related to the siting of new hazardous liquid and natural gas transmission pipelines though the principles of effective communication apply in siting as well. It also does not address the network of small-diameter natural gas distribution lines which serve individual customers.

*Additional information can be found in Special Report 281 of the Transportation Research Board,
"Transmission Pipelines and Land Use: A Risk Informed Approach" 2004*

Contributors to this report

This report is the result of a collaborative effort between state and local governments and the pipeline industry. The information contained within has been shared and discussed in stakeholders groups across the state. The consultation process was the subject of a series of five workshops with local governments in November 2005.

Sponsors of this initiative are:

- The Washington Utilities and Transportation Commission Pipeline Safety Program
- Municipal Research and Services Center
- Association of Washington Cities
- Washington State Association of Counties
- Pipeline Safety Trust

EARLY COMMUNICATION: AN EMPHASIS ON CONSULTATION

As population grows and land becomes scarce, pressure increases for development of remaining open land. Planning and building departments have to juggle competing interests in a time-pressured environment when making their decisions. As with any involved process, the sooner land use issues are addressed the more effectively they can be resolved. For instance, a subdivision design which places a water retention pond precariously adjacent to a transmission pipeline will be hard to correct at a time when final permits are being issued. One answer is early consultation between planners, pipeline operators and developers.

Consultation can be as basic as ensuring that affected pipeline operators are aware of a proposed change in zoning or comprehensive plan to greater involvement such as requiring review and comment by pipeline operators for certain types of developments located adjacent to or near pipeline rights-of-way.

For consultation to be effective, all parties need to understand the following:

1. Location and type of major pipelines
2. Types of land use activities and developments of concern
3. Options for fostering and/or enforcing consultation
4. Roles & responsibilities

1. Awareness of location and type of pipeline

Understanding the existence and location of hazardous liquid and natural gas transmission pipelines within a community is essential to protecting public health and safety. The communication required here is primarily between local government and the pipeline operator. Local government can foster this greater awareness by ensuring that all their maps, particularly those used for planning and building departments, indicate the location of all transmission pipelines.

The Washington UTC pipeline safety program can provide local governments with pipeline location data, in a form that is most useful to them. The pipeline safety program also can assist local governments in learning about the types and characteristics of the pipelines running through their jurisdiction as well as how to contact the operators.



Figure 3 – Subdivision with Pipeline Location

Planners should overlay the pipeline maps with their zoning maps and consider whether any action should be proactively taken. Consulting with the pipeline operator can help educate planners about the pipeline's contents, volatility, pipe pressure, depth and other characteristics. In doing so, planners can develop a better understanding of the consequences associated with a pipeline leak or rupture and determine the range of influence of the pipeline. For instance, a high-pressure natural gas pipeline rupture will have a range or zone of consequence that goes significantly beyond the pipeline's right-of-way.

A petroleum pipeline release also can affect an area wider than its right-of-way but the size and direction of the spill will be influenced by the topography.

Pipeline operators are obligated under new federal requirements to communicate with local governments on a wide range of issues, including the effect of land use measures on pipeline safety. However, the requirement mandates a schedule of communication that is likely not frequent enough to sustain the type of relationship necessary to build awareness. Local governments may want to institute a more formal way to maintain routine communication and consultation with operators. In particular, this communication should be timed to enlist operator participation in key decisions affecting land use in the vicinity of the pipeline.

See Appendix A for additional information on pipeline regulators and pipeline locations in Washington

2. Types of land use activities and developments of concern

There are two ways to view land use and developments in relation to pipelines.

- Activities that can threaten the integrity of the pipeline
- Activities that can increase the consequence to the public in the event of an incident.

Activities of greatest threat to the pipeline are those that occur within the pipeline's right-of-way. The communication here is primarily between the pipeline operator and the property owner. These activities should be governed by an easement negotiated with individual property owners. The easement is held by the operator and includes the right to operate, maintain and repair the pipeline. These easements may not always be well defined but they should be recorded with the deed. While pipeline operators can always use assistance in educating landowners and identifying when easement rights are being violated, the job of enforcing easements rests with the operator.



Figure 4 – Fence on pipeline easement

See Appendix B for additional discussion of Right of Way and easements

In areas adjacent to or near the pipeline right-of-way, the types of activities that threaten the pipeline are those which can cause soil instability, through vibration, earth removal, water runoff or dewatering. These activities include:



Figure 5 – Retention pond near easement

- Land subdivision
- Commercial developments
- Water impoundments
- Public works projects such as roads & sewers
- Industrial activities such as quarrying, mining, and blasting.

Local government planners should require consultation with the pipeline operator early in the planning process before such activities are allowed.

Just as human activity can pose a risk to pipelines, a transmission pipeline can pose a risk to its surroundings. For example, a catastrophic failure of a high-pressure natural gas transmission pipeline could cause injury to people 100 feet or more away and the largest and highest pressure natural gas pipelines can cause injury out to 1,000 feet. This does not mean that no one should be allowed within 1,000 feet of a high-pressure pipeline. It does mean that careful thought should be given to how land adjacent to pipelines should be used.

When zoning land near pipelines, planners should consider the types of land uses which can limit the potential consequences of an incident. For instance, a local jurisdiction may decide to discourage construction of facilities which may be difficult to evacuate such as a high-rise development or nursing home. Similarly, siting emergency response services, such as fire stations and hospitals, should be avoided near pipelines. Zoning of areas near pipelines should favor lower density developments such as agriculture, industry, warehouse and single family housing.

While the focus of regulators and pipeline operators should be on assuring that pipelines are maintained and operated so that they do not rupture or leak, local governments play a vital role in public safety by making land use decisions which can limit the possibility and consequence of a pipeline rupture or leak.

3. Options for fostering and enforcing consultation

The main objective of fostering consultation in land use planning is to limit the possibility and consequence of a pipeline incident—an objective which all parties involved in land use and development should share. However, to avoid conflicts between safety and property rights, the consultation process should begin at the earliest possible opportunity. Local jurisdictions with major pipelines running through their communities should consider employing the following options:

- 1) Include pipeline location on all zoning, building and public works maps
- 2) Request pipeline operator input in any comprehensive plan amendments or rezone
- 3) Require subdivision plans to be reviewed by affected pipeline operators
- 4) Include pipelines as part of the local jurisdiction's State Environmental Protection Act (SEPA) checklist
- 5) Require proof of utility locate call before issuing building/grading permits for parcels within some locally designated distance from the pipeline
- 6) Establish setbacks and modify site and building code specifications

Regarding setbacks, there is no analysis available to local governments which would allow them to establish standards beyond current practice. There is an effort on the national level, sponsored by the federal Office of Pipeline Safety, to consider establishing recommended practices and procedures for local governments which could provide a foundation for establishing setbacks. Such procedures, if done as planned, would be based on the expected risk at various distances from transmission pipelines depending on product type, pressurization and so forth. Since this tool will not be available in the near future, it's the recommendation of the report writers that local government devote their efforts more toward fostering consultation.

See Appendix C for additional discussion of communications and management options for land use in proximity to pipelines.

4. Stakeholder roles & responsibilities

Planners and developers need to be prepared to consult with operators of nearby major pipelines who, in turn, must be easily accessible and prompt in their review and comment. During consultation, both developers and pipeline operators may need to consider changing their plans or operations to accommodate one another and to address public safety concerns. Local government's role, as always, is to protect the health and safety of its citizens, which in this case includes ensuring that such consultation occurs when necessary.

Every stakeholder must be responsible for the following:

- a. Understand and make available accurate pipeline information, including pipeline location;
- b. Understand land use planning issues and processes;
- c. Initiate and sustain communication with other stakeholders early in any project;
- d. Awareness of existing site area conditions e.g., hydro-geologic, infrastructure

Local authorities have the following responsibilities:

- a. Implement land use controls that recognize and preserve the right-of-way; and
- b. Use ministerial or discretionary permit authority to ensure consultation between developer and pipeline operators.

Property owners and developers have the following responsibilities:

- a. Involve pipeline operator in early design;
- b. Design and construct consistent with safe pipeline operation.

Pipeline operators have the following responsibilities:

- a. Easy access to local governments and developers;
- b. Prompt review and comment on any land use decision or development design;
- c. Inclusion in planning authority notification processes regarding development by providing local government with up-to-date contact information; and
- d. Regular communication with local authorities about the importance of pipeline awareness and changes in operating characteristics such as pressure changes.

APPENDICES

- A. Pipeline Operators and Areas Served, Pipeline Contacts, Pipeline Regulators,
- B. Right of Way and Easements
- C. Options for Communications and Management of Land Use in Proximity to Pipelines
- D. Pipeline Resources
- E. Pipeline Typology and Glossary
- F. Acknowledgements

1. Pipeline Operators and Areas Served

Transmission Mileage by County

County	Gas Miles	Liquid Miles	Pipeline Operators
Adams	111.60	45.04	Cascade Natural Gas Corp Williams Gas Pipeline Yellowstone Pipe Line Company
Benton	127.48	1.38	Cascade Natural Gas Corp Agrium, Inc
Chelan	15.74		Williams Gas Pipeline
Clark	94.12	18.85	Williams Gas Pipeline Georgia Pacific Corp Olympic Pipe Line Co
Columbia	6.89		TransCanada GTN System
Cowlitz	109.39	38.12	Cascade Natural Gas Corp Williams Gas Pipeline Olympic Pipe Line Co Weyerhaeuser Northwest Natural (K.B. Pipeline)
Franklin	58.39	49.98	Tidewater Barge Lines Kaneb Pipe Line Co Chevron Texaco Pipeline Cascade Natural Gas Corp Williams Gas Pipeline
Grant	20.78	17.06	Yellowstone Pipe Line Company Williams Gas Pipeline <i>Ochoa AG Unlimited Foods</i>
Grays Harbor	55.94		Cascade Natural Gas Corp Williams Gas Pipeline
King	133.16	83.85	Puget Sound Energy Williams Gas Pipeline Olympic Pipe Line Co
Kitsap	19.29		Cascade Natural Gas Corp
Kittitas	36.29		Williams Gas Pipeline
Klickitat	99.62		Williams Gas Pipeline
Lewis	69.10	27.51	Puget Sound Energy Williams Gas Pipeline Olympic Pipe Line Co
Lincoln	23.55	81.72	Avista Utilities Chevron Texaco Pipeline Williams Gas Pipeline Yellowstone Pipe Line Company
Mason	59.54		Williams Gas Pipeline Cascade Natural Gas Corp
Pierce	70.32	44.68	Puget Sound Energy Olympic Pipe Line Co Williams Gas Pipeline McChord Pipeline

County	Gas Miles	Liquid Miles	Pipeline Operators
Skagit	123.77	76.85	Olympic Pipe Line Co Williams Gas Pipeline Cascade Natural Gas Corp Terasen Pipeline
Skamania	36.65		Williams Gas Pipeline
Snohomish	139.60	77.45	Puget Sound Energy Cascade Natural Gas Corp Williams Gas Pipeline Olympic Pipe Line Co
Spokane	192.99	96.50	Avista Utilities Inland Empire Paper Co Chevron Texaco Pipeline TransCanada GTN System Yellowstone Pipe Line Company Williams Gas Pipeline
Thurston	119.30	32.29	Puget Sound Energy Williams Gas Pipeline Olympic Pipe Line Co
Walla Walla	127.89	66.23	Agrium, Inc Cascade Natural Gas Corp Chevron Texaco Pipeline TransCanada GTN System Williams Gas Pipeline Tidewater Barge Lines Valero
Whatcom	189.78	80.63	Ferndale Pipeline System Cascade Natural Gas Corp Williams Gas Pipeline Olympic Pipe Line Co BP Cherry Point Sumas Co Generation Co., LP. Terasen Pipeline
Whitman	195.12		Williams Gas Pipeline TransCanada GTN System
Yakima	71.03		Cascade Natural Gas Corp Williams Gas Pipeline
Totals	2307.33	838.14	

Source: Washington Utilities and Transportation Commission

2. Pipeline operator contacts for the Washington [\(source WUTC Website\)](#)

Intrastate Natural Gas Distribution & Transmission

Local Distribution Companies

Avista Utilities Corp.

E 1411 Mission
Spokane, WA 99220
Main Phone Line: (800) 227-9187
Website: www.avistautilities.com
Mileage: 2,737

Cascade Natural Gas Corporation (CNG)

222 Fairview Ave N
Seattle, WA 98124
Main Phone Line: (206) 624-3900
1-888-522-1130
Website: www.cngc.com
Mileage: 4,049¹

Northwest Natural

220 NW 2nd Ave - One Pacific Square
Portland, OR 97209
Main Phone Line: (503) 226-4211
Website: www.nng.com
Mileage: 1,484²

Puget Sound Energy (PSE)

PO Box 90868, EST-07W
Bellevue, WA 98009
Main Phone Line: (800) 225-5773
Website: www.pugetsoundenergy.com
Mileage: 11,149³

*

Intrastate Liquid

Agrium U.S. Inc. (Liquid)⁴

227515 E Bowles Rd
Kennewick, WA 99336-0618
(509) 586-5500
Mileage: 2
Contents: Anyhdrous Ammonia

McChord Pipeline Company

3001 Marshall Ave
Tacoma, WA 98401
(253) 383-1651
Website: <http://www.goldbankone.com/>
Mileage: 14.25
Contents: Jet Fuel

BP Cherry Point Refinery

4519 Grandview Rd
Blaine, WA 98231
(360) 371-1712
Website: <http://bpcherrypoint.com/go/site/67/>
Mileage: 10.3
Contents: Crude oil, butane

Tidewater Barge Lines, Inc.

6305 NW Old Lower River Rd
PO Box 1210
Vancouver, WA 98660
(360) 693-1491
Website: <http://www.tidewater.com/transport.php>
Mileage: 2.8
Contents: Gasoline, diesel, jet fuel

¹ Mileage includes street mains but does not include service lines running from street to the meter.

² ibid

³ ibid

⁴ This operator has additional pipeline listed in another section on this page

Olympic Pipe Line-Intrastate Lateral

2319 Lind Ave SW
 Renton, WA 98055-4047
 (425) 235-7736
 Website: [Olympic Pipe Line Co](http://www.olympicpipe.com)
 Mileage: 41
 Contents: Gasoline, diesel, jet fuel

Valero L.P.

7340 W 21st St N, Suite 200
 Wichita, KS 67205-1728
 (316) 773-9000
 Website: <http://www.valero.com/>
 Mileage: 4.2
 Contents: Diesel

Whidbey Island Naval Air Station

Ignacio Cabilan, Manager
 Doss Aviation, Inc.
 1025 W Lexington St., Bldg 278
 NAS Whidbey Island
 Oak Harbor, WA 98278-5300
 (360) 257-2706/257-2707
 Mileage: 5
 Contents: Fuel

Interstate Liquid

Olympic Pipe Line-Interstate⁵

2319 Lind Ave SW
 Renton, WA 98055-4047
 (425) 235-7736
 Website: [Olympic Pipe Line Co](http://www.olympicpipe.com)
 Mileage: 350
 Contents: Gasoline, diesel, jet fuel

Exxon Mobil Corporation

PO Box 2180
 Houston, TX 77252-2180
 (713) 656-8209
 Tanks only
 Contents: Gasoline, diesel

Chevron Texaco Pipeline Company

2811 Hayes Rd
 Houston, TX 77082
 (281) 596-3568
 Website:
http://www.chevrontexaco.com/operations/us_canada/
 Mileage: 157
 Contents: Gasoline, diesel, jet fuel

Terasen - Puget Sound System

Ste 2700 Stock Exchange Tower
 300 - 5th Ave SW
 Calgary, AB T2P 5J2
 Canada
 Website:
<http://pipelines.terasen.com/bins/index.asp>
 Mileage: 63.8
 Contents: Crude oil

⁵ Olympic Pipe Line main line is considered interstate; its laterals are considered intrastate

ConocoPhillips, Inc., - Pipe Line Co.

600 North Dairy Ashford

Houston, TX 77079

(877) 267-2290

Website: <http://www.conocophillips.com/index.htm>

Mileage: 135.35

Contents: Gasoline, diesel, jet fuel

Intrastate Gas (Direct Sales)**Agrium, U.S. Inc. (Gas)⁶**

227515 E Bowles Rd

Kennewick, WA 99336-0618

(509) 586-5500

Mileage: 1

Inland Empire Paper Co.

3220 N Argonne

Spokane, WA 99212-2099

(509) 924-1911

Website: [<Inland Empire Paper> Home Page](#)

Mileage: 3

Evergreen Aluminum LLC

(Formerly known as Vanalco, Inc.)

5701 NW Lower River Rd

Vancouver, WA 98666

(360) 696-8626

Mileage: dormant

Ochoa AG Unlimited Foods

1203 Basin Ave

PO Box 747

Warden, WA 98857

(509) 349-2210

Mileage: 4

Ferndale Pipeline System

(Formerly known as ARCO Western

Gas Pipe Line Co.)

4519 Grandview Rd

Blaine, WA 98231

(360) 371-1712

Mileage: 36.5

Sumas Cogeneration Co. L.P.

601 W Front St

Sumas, WA 98295-0220

(425) 889-1000

Mileage: 4

Georgia Pacific Corp.-Camas Mill Weyerhaeuser Paper Company

401 NE Adams St

Camas, WA 98607

(360) 834-3021

Mileage: 1.68

3401 Industrial Way

PO Box 188

Longview, WA 98632-7117

(360) 425-2150

Mileage: 9

⁶ Agrium operates a gas pipeline and a hazardous liquid pipeline

Interstate Gas

K.B. Pipeline Co.

222 Fairview Ave N
Seattle, WA 98124
(206) 381-6720
Mileage: 17

Williams Gas Pipeline

295 Chipeta Way
Salt Lake City, UT 84158-0900
(801) 584-6612
24-hour gas control phone line (800)
972-7733
Website:
www.williams.com/williamsinwashington
Mileage: 1467.5

TransCanada's GTN System

1400 SW 5th Avenue, Suite 900
Portland, OR 97201
(503) 833-4000
Website:
http://www.gastransmissionnw.com/company_info/
Mileage: 309

Municipal Gas Operators

City of Buckley

133 Main St
PO Box 1960
Buckley, WA 98321
(360) 829-1921
Mileage: 34

City of Enumclaw

1339 Griffin Ave
Enumclaw, WA 98022
(360) 825-3591
Mileage: 98

City of Ellensburg

420 N Pearl St
Ellensburg, WA 98926
(509) 962-7224
Mileage: 104.5

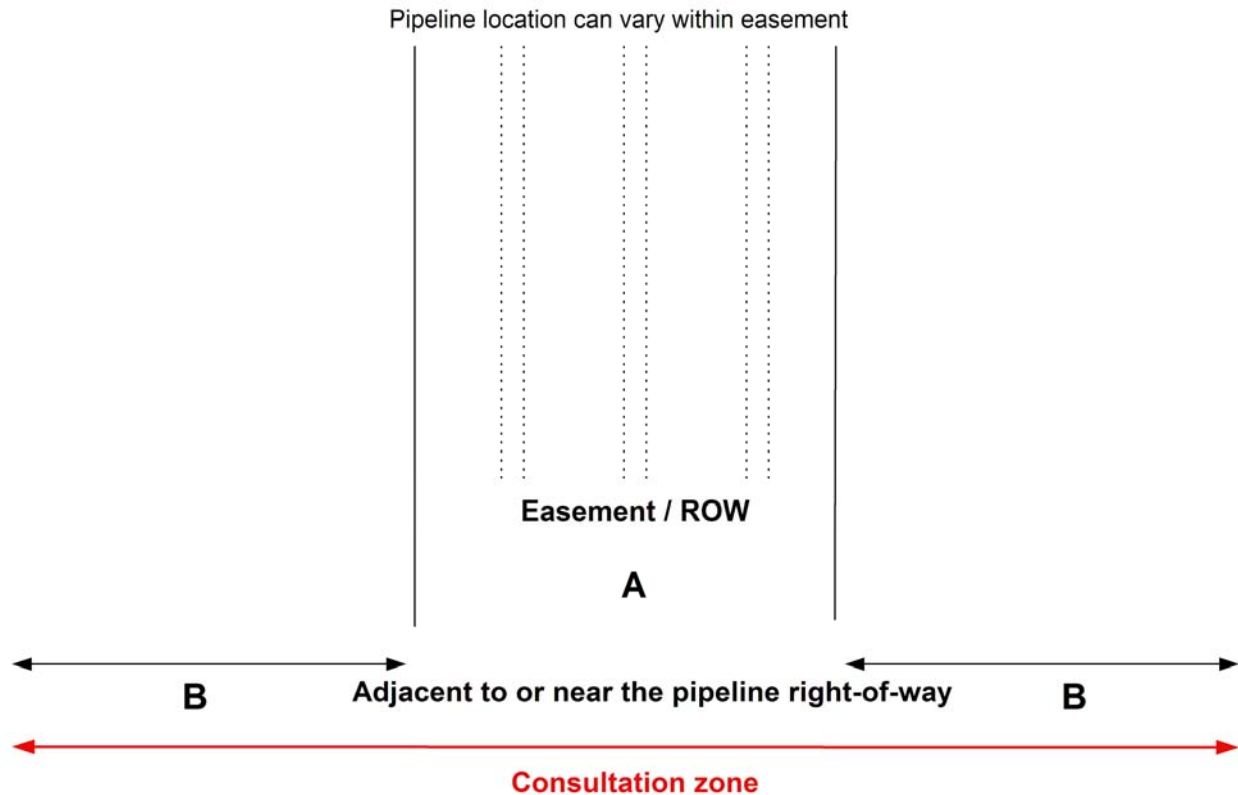
3. Pipeline Regulators

Natural gas and hazardous liquid pipelines are subject to federal, state and local regulations, depending upon the status of the facility and jurisdiction under which they are operated.

NEW PIPELINES	
Design and construction standards for intrastate natural gas pipelines >14 inches diameter that is at least 15 miles and connected to a gas distribution system.	Energy Facilities Site Evaluation Council (EFSEC)
Design and construction standards for new intrastate petroleum product >6 inches diameter and at least 15 miles long	Energy Facilities Site Evaluation Council (EFSEC)
Siting of interstate natural gas pipelines	Federal Energy Regulatory Commission (FERC)
Construction monitoring for interstate natural gas and hazardous liquid pipelines	WUTC as the Washington-based inspector for U.S. Department of Transportation, Office of Pipeline Safety (OPS)
Design review and construction monitoring for intrastate natural gas and hazardous liquid pipelines	WUTC
EXISTING PIPELINES	
Safe operations and maintenance of existing intrastate pipelines	WUTC
Safe operations and maintenance of existing interstate pipelines	OPS with WUTC serving as its state-based inspectors
Land use and zoning on/near pipelines	Local government
Maintenance of easements	Pipeline operators
Environmental damages	Washington State Department of Ecology and U.S. Environmental Protection Agency
Violations of one-call notification and prevention requirements	No state agency is clearly authorized to enforce. Enforcement defaults to the Office of the Washington State Attorney General

Rights of Way and Easements

The figure below illustrates the areas in proximity to transmission pipelines addressed in this report. The area marked as “A” is within the pipeline right-of-way or easement and is the subject of this appendix. The areas marked as “B” are areas off the right-of-way close enough to either host an activity which could be a threat to pipeline safety or be threatened by a pipeline failure. (See Appendix C for more about this area.) The two areas together constitute the consultation zone—the zone in which it is advisable to involve the pipeline operator in land use decisions.



A **right-of-way** (ROW) is a defined strip of land on which an operator has the rights to construct, operate, and/or maintain a pipeline. The operator might own the ROW land outright or have acquired an easement from a landowner for specific use of the land. An **easement** is an acquired privilege or right, such as a right-of-way, afforded a person or company to make limited use of another person or company's real property.

The pipeline right-of-way includes a specific width of surface area directly above the pipeline. The right-of-way should be wide enough to permit the pipeline operator reasonable access to maintain the pipeline.

Different types of easements have developed over the years – defined and undefined. The most common is the **defined or specified easement** which has a specific legal description and easement width (typically ranging from 30 to 100 feet).

An **undefined or unspecified open easement** is less common. This type of easement does not define the precise location of the pipeline nor does it specify an easement width.

A typical right-of-way agreement or easement between a pipeline operator and landowner can prohibit certain activities or developments outright or require permission of the pipeline company. There are two primary reasons for restricting certain activities and development on rights-of-way:

1. To limit ground disturbances within pipeline rights-of-way; and
2. To ensure the right-of-way is clear of obstructions for maintenance, and allow for above ground integrity surveys and surveillance.

Two common land use limitations found in pipeline easements are 1) restrictions on structures that may be placed within the easement, and 2) restrictions on changing the depth of cover over the pipeline.

Each pipeline company determines what restrictions are necessary to keep its lines safe and incorporates such restrictions into the easements. Examples of specific land uses or activities prohibited or restricted on pipeline easements in Washington include:

- Erecting buildings or other structures
- Drilling or operating a well
- Constructing a reservoir or other obstruction
- Diminishing or substantially adding to the ground cover over the pipeline
- Installing septic tanks or leach lines

Management/Control of Land Use Activity in Rights Of Way and Easements

The land uses that may occur on lands traversed by an easement/ ROW are governed first by the local zoning, and then may be further constrained by the terms of the easement, which is a contract entered into by the landowner and the pipeline operator..



Local regulations for development review and permit issuance apply within and outside of an easement or ROW. Exactly which activities and exemptions apply varies among jurisdictions. Activities such as digging or excavation that are not associated with a building permit for a structure or the approval of a subdivision may or may not be regulated. Typically local jurisdictions exempt many types of building projects from permit requirements e.g., agricultural structures and grading, well drilling, accessory buildings of less than a designated size.

While local jurisdictions may want to be more proactive in identifying activities on an easement or ROW which may threaten pipeline safety, the pipeline operator has the primary responsibility for its ROW and easement management and enforcement. Pipeline operators monitor

compliance through regular air and ground patrols, through video surveillance, and through periodic communication with groups most likely to engage in or observe activities on the right of way. Messages regarding the easement, its restrictions and related information are often conveyed as a part of information about the “one call” underground utility locating service. Target recipients include landowners, excavation/blasting contractors, developers, local governments, emergency responders, utilities, and irrigation or improvement districts.

The pipeline operator may seek relief through the courts to eliminate an encroachment or to halt an activity that interferes with its easement rights. Typically, however, operators attempt to resolve encroachment problems outside of court.

Encroachment is used to describe a land use or activity that intrudes upon the rights of the pipeline operator as defined in the easement. This usually entails an activity within the easement boundaries.

One approach pipeline operators take in managing easement encroachment issues is to develop standards of land use/pipeline compatibility for land use activities on pipeline easements. A pipeline operator might sort land uses and activities into three basic categories:

- 1) Prohibited without exception (No)
- 2) May be conditionally approved (Yes but consent is required)
- 3) Allowable without approval (Yes)

Table B1 provides a listing of acceptable and unacceptable activities on pipeline easements and ROW. The nature of this information varies from company to company. The specific information in Table B1 was provided by TransCanada-GTN System and reviewed by other pipeline operators.

Guidelines for Acceptable Use of Pipeline Company Lands and Easements

Note: This is an example of one pipeline company's approach (TransCanada, GTN System) and should not be viewed as implying a uniform standard. The document has also been annotated with comments from other pipeline company reviewers.

Use/Activity	Acceptable	Remarks/Requirements
Agriculture	Yes <u>Consent may be required.</u>	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 pipeline. Facilities such as underground and overhead irrigation systems must be reviewed for compatibility. [One company suggested that "crops" be modified to "seasonal agricultural crops" to clarify that orchards or vineyards may in fact be restricted – see "Orchards" below]
Airports - Private	Yes <u>Consent required.</u>	Permission to use the right of way for a flight strip will 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 right of way. [One company commented that not every operator might allow this use on its easement].
Airports - Public	No	
All Terrain Vehicle (ATV) Use	No	Casual use of the right of way for recreational ATV driving does not require permission from the Company. However, care should be taken to avoid formal or informal designation of the right of way as an ATV trail. Physical barricades and visual screening of the right of way at access points should be utilized as necessary to discourage such use.
Automobile Wrecking Yards	No	
Boats		See Marinas.
Blasting	No	On easements or fee land where any facilities are installed. Exceptions are for construction of another approved activity, subject to engineering review for technique, size of shots, etc. (See OMI FF-15)
Buildings	No	No type of permanent structure permitted. See also "Structures".

Use/Activity	Acceptable	Remarks/Requirements
Canals	Yes <u>Consent Required.</u>	Canals or ditches may be built across Company easements provided: 1) Adequate precautions are taken to protect company facilities. Plans must be approved by Operations Engineer. 2) Party building the canal will pay the cost of protecting or relocating company facilities.
Cathodic Protection Devices	Yes	Cathodic protection facilities may be installed provided they are coordinated with other utilities, and all interference problems are eliminated. Must be approved by the Manager of Code Compliance and Cathodic Protection.
Campsites	No	
Canopies	No	
Carports	No	
Catch Basins	No	
Christmas Trees		See Tree Farms.
Concrete Slabs	No	Except where they may be installed to provide for pipeline protection - submit plans for review.
Conduits/Fiber Optics		See Utilities.
Construction Equipment (Use)	Yes	Hand dig trenches within 5' of pipeline. Provide for Company supervision while work is in progress. Give 48 hours prior notice before performing work. Call One-Call number for utility locating.
Cross Streets		See Roads.

Use/Activity	Acceptable	Remarks/Requirements
Culverts	Yes <u>Consent required.</u>	Provided 1' separation maintained between pipeline and culvert, with culvert above pipeline. Plans must be approved by Operations Engineer.
Curbs and Gutters		See Roads.
Cuts and Fills	Yes <u>Consent required.</u>	Some cutting and filling may be permitted over pipeline provided: 1) Cover is not reduced below 36". 2) Cover is not increased to the point where pipe exceeds acceptable stress levels. Review with Operations Engineer.
Dams	No	Company facilities that must be relocated will be at the expense of applicant.
Ditches		See Canals.
Docks		See Marinas.
Driveways	Yes <u>Consent Required.</u>	A driveway may be built across Company easements, provided: 1) It is for use of property owner only, and does not provide access for another parcel of property. 2) Clearances are maintained as in Cuts and Fills. 3) Written permission is obtained.
Drains		See Culverts.
Ducts		See Pipelines.
Dumps	No	

Use/Activity	Acceptable	Remarks/Requirements
Electric Lines		See Power Lines.
Equipment		See Construction Equipment.
Erosion Control	Yes <u>Consent required.</u>	Structures or materials to prevent soil erosion due to wind or water may be located on the pipeline right of way provided: 1) They do not interfere with the installation, operation or maintenance of the pipeline. 2) The design has been approved by the engineering and environmental departments. 3) The facilities have taken into account the effect of the environment of the area.
Exploration - Geologic and Geophysical	Yes	Subject to proper indemnification and site cleanup. Must be approved by Operations Engineer. Also see Blasting and Wells.
Fences	Yes	(general) Provided adequate access to and around facilities is maintained. Company retains the right to install a gate in the fence with a corporation lock where necessary to maintain such access. Gates should be at least 12 feet wide. Fence posts must not be installed directly over pipeline. Written permission <u>not</u> required. <i>[One company noted that one-call notification would be required for post-hole excavation even though a written consent may not be required, and that perhaps the guideline should include such a reminder].</i> See Utilities.
Fiber Optic Cable		
Flammable Material	No	
Flood Control	Yes <u>Consent required.</u>	See Erosion Control, Canals, Dams.
Flooding	No	If there is a possibility of periodic flooding, buoyancy of pipeline must be considered.
Golf Courses	Yes <u>Consent required.</u>	See Landscaping.

Use/Activity	Acceptable	Remarks/Requirements
Grazing		See Agriculture.
Greenbelts		See Landscaping.
Ground Clearance		See Cuts and Fills.
Ground Cover		See Cuts and Fills.
Highways	Yes <u>Consent required.</u>	Easements will be granted for highway construction provided Company is reimbursed for cost of protecting, upgrading or relocating pipeline so that it complies with all applicable regulations and requirements. Where a highway is widened to take in an area where the Company has a prior right of way, the Company shall be reimbursed for that portion of the work that falls in the area where Company has prior rights. NOTE: Normally these arrangements are covered by applicable State Laws.
Hiking Trails	Yes	Provided reasonable access to facilities is maintained. See also Landscaping and Cuts and Fills.
Horseback Riding Trails	Yes	Provided adequate access to facilities is maintained. See also Cuts and Fills.
Horticulture	Yes	See Agriculture.
Incinerators	No	
Irrigation Lines	Yes <u>Consent required.</u>	See Agriculture and Canals.
Junk Yards	No	
Lakes	No	See Ponds and Dams.
Landscaping	Yes <u>Consent may be required.</u>	Provided reasonable access to facilities is maintained. See Cuts and Fills for earthwork requirements. No trees or deep-rooted shrubs should be planted within 10' of the

Use/Activity	Acceptable	Remarks/Requirements
		pipeline.
Launching Ramps	No	See Marinas.
Lawns	Yes	See Cuts and Fills and Sprinkler Systems.
Leach Fields	No	(General) Leach field would be subject to damage by passage of heavy equipment. Piping leading to leach field may cross Company pipeline (see Pipelines). Entire leach field must be outside of right of way. Before granting permit for piping, owner must show proof of permit that installation will meet all State and local water quality requirements.
Loading Ramps	No	
Mains		See Pipelines.
Marinas	No	Marinas may not be installed on Company right of way at river crossing.
Masonry Work	No	
Mining	No	See Quarries.
Mini Golf Courses	No	May be allowed if no permanent structures are placed on right of way.
Mobile Homes	No	
Mobile Home Parks	No	No mobile home park facilities may be installed on Company right of way. Permission to construct facilities (roads, utilities, etc.) across right of way to service mobile home park on land adjacent to Company right of way will be granted only if owner will pay cost of upgrading and/or protecting Company facilities.

Use/Activity	Acceptable	Remarks/Requirements
Model Airplanes	Yes	Model airplanes may be flown over Company right of way but no permanent facilities may be located on right of way.
Non-Flammable Materials		See Storage.
Orchards	Yes	Trees may not be planted within 10' of pipelines.
Parks	Yes <u>Consent required.</u>	Right of way may be used as part of park area, but permanent structures may not be located on right of way. Specific plan review required.
Parking	Yes <u>Consent required.</u>	<p>A private property owner may park vehicles used in his work (such as farm equipment) on the right of way. However, equipment shall not be parked over pipelines. Use of the easement as a commercial or other publicly used parking lot, whether paved or unpaved, should be discouraged, and shall not be allowed without review by the Operation Services Superintendent and Operations Engineer, and granting of appropriately conditioned consent. The Company shall not accept liability for damages to the parking facility caused by the exercise of its rights under the easement, and shall reserve the right to prohibit vehicular parking on its easement at any time.</p> <p><i>[One company noted that the job responsibilities listed in this internal guideline are specific to one operator's organization, rather than universally applicable].</i></p>
Patios	No	
Pipelines	Yes <u>Consent</u>	Permits will be granted for other pipelines to cross Company right of way, provided:

Use/Activity	Acceptable <u>required.</u>	Remarks/Requirements
		<ol style="list-style-type: none"> 1) Crossing is kept as close to a right angle as possible. 2) Pipeline maintains at least one-foot clearance above Company pipeline or two feet below Company pipelines. Pipeline crossings above the Company's pipelines should be strongly discouraged. 3) Installation makes provisions for future use of Company right of way. 4) Precautions are taken to protect both facilities from interference problems due to cathodic protection. 5) Pipeline meets all Federal, State and local requirements with respect to safety and environment. 6) Parallel encroachments are not allowed. (See "Utilities Parallel")
Play Equipment	Yes	No permanent structure may be installed on right of way. Play equipment without embedded footings or foundations are allowed.
Playgrounds		See Parks.
Ponds	No	
Porches	No	
Power Lines	Yes <u>Consent</u> <u>required.</u>	<p>Power lines may be installed across Company right of way provided:</p> <ol style="list-style-type: none"> 1) Poles or towers are not located on Company right of way. 2) Wires have adequate clearance to permit working on pipeline. 3) Parallel encroachments of above or below ground power lines are not allowed (See "Utilities – Parallel"). 4) Power lines are not located within 200 feet of a blow-down stack. 5) Buried power lines meet Company standards.
Private Landowner Crossing of Pipeline	Yes <u>Consent</u> <u>required.</u>	Where a private landowner crosses the company pipeline with a buried structure, a consent letter will be required; however, the minimum clearance of one foot above or two feet below company pipeline shall be maintained across the entire right of way. Two feet below is preferred.

Use/Activity	Acceptable	Remarks/Requirements
Pump Islands	No	
Pumps	No	
Quarries	No	Off right of way quarrying activities in proximity to the right of way should be brought to the attention of an Operations Engineer for assessment of potential impacts to the integrity of the right of way and Company facilities. (See OMI FF-15).
Railroads	Yes <u>Consent required.</u>	Railroad crossings are permitted, provided railroad agrees to pay the cost to upgrade or protect pipeline. Clearances shall be provided as required in Cuts and Fills.
Recreation Areas	Yes (qualified)	Pipeline right of way may be used for general recreation that does not require the use of any permanent structures or facilities. Check with Operation Services Superintendent and Land Supervisor before permitting any section of Company right of way to be designated as a "Recreational Area".
Reservoirs		See Ponds.
Retaining Walls	Yes <u>Consent required.</u>	Provided adequate access to facilities is maintained and Cuts and Fills criteria is maintained. All retaining walls on Company right of way must be approved by Operations Engineer.
Rifle Ranges	No	Limited use may be made of area across Company right of way but no permanent facilities may be located on right of way.
Road - Parallel	Yes <u>Consent required.</u>	Provided that plans are approved by Operations Engineer, and road easement is subordinate to Company's.
Road Crossings - Private	Yes <u>Consent required.</u>	Consent will be granted for private roads across Company right of way provided: <ol style="list-style-type: none"> <li data-bbox="764 1625 1463 1709">1) Assurance is given road will remain a private road. It must be so marked and signs must be maintained. <li data-bbox="764 1709 1333 1738">2) Road must not be given a hard surface. <li data-bbox="764 1738 1406 1768">3) Cut and Fill requirements must be maintained. <li data-bbox="764 1768 1463 1869">4) Owner must agree to pay cost of protecting or upgrading pipeline if road should be paved or status is changed to a public road.

Use/Activity	Acceptable	Remarks/Requirements
Road Crossings- Public	Yes <u>Consent required.</u>	Consent will be granted for a public road or street across Company right of way provided: 1) Developer pays for cost of protecting, upgrading or relocating pipeline. 2) Company retains prior rights on roads dedicated to the state, county or city.
Septic Tanks	No	
Service Stations	No	
Sewer Lines		See Utilities, Septic Tanks and Leach Fields.
Sidewalks		See Roads.
Signs	No	Signs, except pipeline markers, shall not be permitted on Company right of way.
Spoil		See Cuts and Fills.
Sprinkler Systems (underground)	Yes <u>Consent required.</u>	Crossings of pipeline shall be kept to a minimum. Due consideration must be given to cathodic protection interference.
Stock Piles		(means storage of earth) See Cuts and Fills.
Storage	No (qualified)	The pipeline right of way shall not be designated as storage area. However, small amounts of non-combustible materials or equipment may be stored on the right of way by the property owner provided it does not interfere with access to the pipeline.
Storm Drains		See Utilities, Culverts and Catch Basins.
Streets		See Roads.

Use/Activity	Acceptable	Remarks/Requirements
Structures	No	Permanent structures (i.e. any facility or structure, the foundation or any other portion of which lies below the ground surface, or is otherwise not readily moveable) are not allowed. Small outbuildings (e.g. sheds, playhouses) on blocks or without foundations may be permitted on a case by case basis.
Subdivisions	Yes (qualified)	The area over our pipeline right of way may be subdivided, provided: <ol style="list-style-type: none"> 1) No permanent structures may be located on pipeline right of way. 2) Streets or roads are laid on out to cross pipeline at close to a right angle. Parallel encroachments are not acceptable. 3) Subdivider must meet requirements for Road Crossings, either private or public. 4) Right of way is not used for utility corridor. 5) Subdivider shall submit approved subdivision plans. 6) Necessary consents are issued by the Company.
Swimming Pools (built-in)	No	
Tanks	No	Above or underground.
Telephone Cable, OH and UG		See Utilities.
Tennis Courts	No	
Trails	Yes <u>May require consent.</u>	Provided they are not hard surface and adequate precautions are taken to prevent erosion. See Cuts and Fills.
Trash Burners	No	

Use/Activity	Acceptable	Remarks/Requirements
Tree Farms	Yes (qualified)	Must provide access to pipeline and structures. No planting within 10 feet of pipeline.
Trees, Shrubs (ornamental)	Yes	See Tree Farms.
TV Cable, OH and UG	Yes	See Utilities.
Utilities - Parallel	No	Parallel encroachment of any utilities, either overhead or underground may be allowed in some cases for short distances. In general, parallel encroachments are to be strongly discouraged. It should be noted, however, that standard Company easements may not allow us to absolutely prohibit such encroachments.
Utilities - Crossing	Yes <u>Requires Consent.</u>	<p>Consent to common use will be granted for crossings of overhead or underground utilities provided:</p> <ol style="list-style-type: none"> <li data-bbox="764 940 1463 1031">1) Overhead lines must provide adequate clearance for working on pipeline. Poles, anchors or supports may not be located on right of way. <li data-bbox="764 1062 1463 1455">2) All underground lines must be installed with minimum one foot of clearance between pipeline and utility if crossing is above pipeline and two feet of clearance if crossing is below pipeline and must be at same depth completely across right of way. Crossings above our pipeline shall be strongly discouraged. Underground electric lines of less than 600 volts and all buried telephone lines, must be encased in plastic conduit across the entire width of the right of way. Underground electric lines of over 600 volts must be encased in rigid steel pipe across the entire width of the right of way. <li data-bbox="764 1486 1463 1640">3) Utility requesting Permit must pay for any protection or upgrading of Company facilities, and a temporary relocation clause may be inserted in the Permit to allow construction or maintenance of our pipeline. <li data-bbox="764 1671 1463 1820">4) Utility crossings must be designed to meet all applicable federal, state and local codes and requirements and assurance shall be given that due consideration has been given to the effect of the project on the surrounding area.

Use/Activity	Acceptable	Remarks/Requirements
Utility Crossings on Public Roads	Yes <u>Consent</u> <u>Required.</u>	Where a utility facility crosses the Company pipeline on a public road, the utility normally has equal rights with the Company facility. However, every effort shall be made to work with the Company installing the facility to provide a minimum of one foot of clearance between the utility and the pipeline, if the utility crosses above the Company line or two feet if the utility crosses below the pipeline, and that the same depth be maintained completely across what would normally be the Company right of way. Two feet below is preferred. The same criteria for underground electric lines as set forth in "Utilities – Crossing" should also be requested. Engineering review is required even if no Consent is issued.
Utilities Crossing Company Land	Yes <u>Consent</u> <u>Required.</u>	Company will grant rights of way for utilities across lands provided: <ol style="list-style-type: none"> <li data-bbox="764 1031 1463 1087">1) Easement will not interfere with present or future use of land by Company. <li data-bbox="764 1121 1463 1241">2) Company retains right to have utility relocate at its own expense at a future date, if such relocation becomes necessary to permit utilization of land by Company. <li data-bbox="764 1274 1463 1367">3) Utilities must be installed and maintained in accordance with all applicable codes and requirements. <li data-bbox="764 1400 1463 1451">4) Adequate consideration must have been given to effect of utility on the environment of the area.
Underground Structure	No	Other than pipelines and related facilities.
Vaults	No	
Vehicles		See Parking.
Wading Pools	No	

Use/Activity	Acceptable	Remarks/Requirements
Water Pipelines		See Utilities or Agriculture
Weighing Stations	No	
Wells	No	
Wrecking Yards	No	

index with hyperlinks

agriculture _____	1
airports - private _____	1
airports - public _____	1
all terrain vehicle (ATV) use _____	1
automobile wrecking yards _____	1
boats _____	1
blasting _____	1
buildings _____	1
canals _____	2
cathodic protection devices _____	2
campsites _____	2
canopies _____	2
carports _____	2
catch basins _____	2
christmas trees _____	2
concrete slabs _____	2
conduits/fiber optics _____	2
construction equipment _____	2
cross streets _____	2
culverts _____	3
curbs and gutters _____	3
cuts and fills _____	3
dams _____	3
ditches _____	3
docks _____	3
driveways _____	3
drains _____	3
ducts _____	3
dumps _____	3
electric lines _____	4
equipment _____	4
erosion control _____	4
exploration - geologic and geophysical _____	4
fences _____	4
fiber optic cable _____	4
flammable material _____	4
flooding _____	4

Table B1

golf courses	4
grazing	5
greenbelts	5
ground clearance	5
ground cover	5
highways	5
hiking trails	5
horseback riding trails	5
horticulture	5
incinerators	5
irrigation lines	5
junk yards	5
lakes	5
landscaping	5
launching ramps	6
lawns	6
leach fields	6
loading ramps	6
mains	6
marinas	6
masonry work	6
mining	6
mini golf courses	6
mobile homes	6
mobile home parks	6
model airplanes	7
non-flammable materials	7
orchards	7
parks	7
parking	7
patios	7
pipelines	7
play equipment	8
playgrounds	8
ponds	8
porches	8
power lines	8
private landowner crossing of pipeline	8
pump islands	9
pumps	9
quarries	9
railroads	9
recreation areas	9
reservoirs	9
retaining walls	9
rifle ranges	9
road -parallel	9
road crossings - private	9
road crossings - public	10
septic tanks	10
service stations	10
sewer lines	10
sidewalks	10
signs	10
sprinkler systems	10
stock piles	10

Table B1

storage	10
storm drains	10
streets	10
structures	11
subdivisions	11
swimming pools (built-in)	11
tanks	11
telephone cable, OH and UG	11
tennis courts	11
trails	11
trash burners	11
tree farms	12
trees, shrubs (ornamental)	12
tv cable, OH and UG	12
utilities - parallel	12
utilities - crossing	12
utility crossings on public roads	13
utilities crossing company land	13
underground structure	13
vaults	13
vehicles	13
wading pools	13
water pipelines	14
weighing stations	14
wells	14
wrecking yards	14

Options for Communications and Land Use Management in Proximity to Transmission Pipelines

This appendix contains concepts on how to foster greater communication and consultation when making decisions regarding land use in proximity to transmission pipelines. This appendix also includes sample language for a Consultation Process ordinance and examples of other city ordinances addressing land use and pipeline safety.

These ideas arose from workshops with local government officials and pipeline operators. When adapted for use by local governments, one or more of these concepts can encourage land use practices that foster safe pipelines and protect public safety and health.

As noted in the report, the types of activities in close proximity to the pipeline that require consultation are generally those that can threaten geologic stability or cause excess water runoff/erosion. Activities include:

- Land subdivision
- Commercial developments
- Water impoundments
- Public works projects such as roads & sewers
- Industrial activities such as quarrying, mining, and blasting.

Local governments should also be concerned about land uses that may be vulnerable or essential in the event of a pipeline incident. For instance, a local jurisdiction may decide to discourage construction of nursing homes and hospitals in proximity to a transmission pipeline because it may be difficult to evacuate or may be a necessary facility in the event of an incident. While such decisions do not necessarily require the consultation of the pipeline operator, the input of pipeline operator can provide local governments with an understanding of the likely consequences of an incident and the size of the area concerned.

1. Consultation in the Comprehensive Planning Process

Twenty-nine counties are either required to fully plan under the Growth Management Act (GMA) or have chosen to do so. These counties make up about 95 percent of the state's population. The remaining 10 counties must only plan for critical areas and natural resource lands. The 29 GMA full plan counties account for approximately 75 percent of the gas transmission pipeline miles and 80 percent of the hazardous liquid pipeline miles.

City and county comprehensive planning activities are critical opportunities for consultation among pipeline stakeholders. Good communication among affected parties can minimize the impact of development, reduce costs for all involved and enhance public safety. Local authorities that are amending comprehensive plans or land use regulations should involve any pipeline operators with facilities running through or near their jurisdictions.

2. Adding Presence of Pipelines to the SEPA Checklist

Information provided during the State Environmental Policy Act (SEPA) review process helps agency decision-makers, applicants, and the public understand how a proposal will affect the environment. This information can be used to change a proposal to reduce likely impacts, or to condition or deny a proposal when adverse environmental impacts are identified. The SEPA checklist also can provide a means for ensuring pipeline safety is considered.

SEPA environmental review starts when:

- Someone submits an application to an agency for a permit to construct a private project, such as an office building, a grocery store, or an apartment building;
- An agency is considering construction of a public project, such as a new school, a highway, or a water pipeline; or
- An agency is developing a regulation, policy, or plan, such as a county or city comprehensive plan, a critical area ordinance, or a state water quality regulation.

Pipeline operators should be included in the consultation during a SEPA review. A key element of the SEPA review is the Environmental Checklist. The checklist is based on a standard form provided by the Department of Ecology which each jurisdiction can adapt to their needs. The checklist can be a vehicle for consultation on land uses in proximity to transmission pipelines.

Unfortunately, pipelines are only broadly referenced in the standard Environmental Checklist:

“7. Environmental Health

Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste that could occur as a result of this proposal? if so, describe.

1) Describe special emergency services that might be required?

2) Proposed measures to reduce or control environmental health hazards, if any”

However, at the 2005 workshops, several local planners recommended that local jurisdictions amend their SEPA checklists to include specific reference to gas and hazardous liquid transmission pipelines to increase the likelihood of consultation when planning in proximity to transmission pipelines.

3. Establishing Zones for Consultation, Zoning & Setbacks

Whether fostering consultation or pursuing other strategies described in more detail below, there is a need to determine the size and shape of the area around the pipeline that should be included in a pipeline safety planning and permitting emphasis. This decision involves variables such as:

- Size and operating pressure of pipeline

- Product in pipeline
- Type of hazard (e.g. toxic, explosive, fire, environmental)
- Topography
- Soils and geology
- Population density
- Built environment
- Type of human activity
- The requirement or policy that would be imposed in that area

In the 2005 workshop draft guidelines and discussions, we proposed a consultation process which would require landowners and developers operating within 660 feet from each side of the centerline of a transmission pipeline to communicate with the pipeline owner prior to receiving a local building permit.

We selected 660 feet because that distance has been used in other pipeline policies¹. However, the discussions at the workshops made it clear that a uniform distance would run afoul of the variables listed above as well as with the culture and politics of the individual local governments.

Local governments wishing to incorporate pipeline safety into their land use planning and permitting will have to balance their need for efficiency and practicality with the level of risk posed by the pipeline. In the absence of any definitive studies recommending a specific distance, no single uniform distance can be applied. We recommend that local governments consider the variables above and make a decision which best reflects their community's interests.

The Consultation zone concept was described in the Canadian Standards Association's (CSA) guidelines concerning land use planning for pipeline guidelines. The CSA guideline suggests that the consultation zone extend a minimum of 200 meters (660 feet) on either side of the centerline of a pipeline. The 200 meters distance is based on the class location criteria found in the Canadian Standards covering oil and gas pipelines in Canada. 660 feet is also the number used in defining class locations in the US Office of Pipeline Safety gas pipeline regulations.

The Transportation Research Board produced a 2004 report² which affirmed that land use decisions can reduce the risk associated with transmission pipelines and recommended that the federal Office of Pipeline Safety develop "risk-informed land use guidelines." Those guidelines, when developed, should be of value to local governments.

¹ Federal pipeline safety regulations suggest 660 feet on either side of pipeline for purposes of conducting mass mailings and education programs. Also, Whatcom County Code 21.04.170, printed in full in Section 5 of this appendix, uses 660 feet.

² "Transmission Pipelines and Land Use: A Risk-Informed Approach," Committee for Pipelines and Public Safety: Scoping Study on the feasibility of Developing Risk Informed Land use Guidance near Existing and Future Transmission Pipelines, Transportation Research Board of the National Academies, 2004.

A. Emergency Response Zones

Local authorities can consider requiring that developers work with local emergency responders to create site specific emergency response plans. This requirement can be done in tandem with other measures, or as a stand alone requirement. The area included within the emergency response zone could be the same as the consultation zone, and should include those areas where a significant pipeline incident will likely cause an injury or fatality. Plan requirements could include a risk assessment, access and evacuation plans, training, resource use, auditing, plan testing, administration and other aspects of emergency preparedness and response.

B. Controlled Activity Areas

As stated earlier, a local government can require that certain activities be conducted only after informing the nearby pipeline operator. For instance, controlled activity areas can be established by specifying a distance on either side of a pipeline in which anyone planning to conduct a ground disturbance, subject to exceptions, such as for normal farming activities, must:

- a) Determine whether a pipeline exists;
- b) Notify the pipeline company of the nature and schedule of the ground disturbance; and
- c) Conduct the ground disturbance in a manner acceptable to both the pipeline operator and the local government.

C. Setbacks

Setback requirements can be helpful in managing land use and protecting a pipeline from encroachment. However, they should not be considered a substitute for stakeholder consultation on land use issues. More importantly, compared to other safety measures available to local governments, establishing setbacks represent a complex regulatory approach.

Setbacks are areas beyond the defined pipeline easement or right of way boundary in which buildings or particular uses are limited or even prohibited. Setbacks are sometimes mistakenly perceived as a buffer or safe distance beyond a pipeline right of way. That is not the case in most situations as those who are at risk can be situated far downhill from the site of a hazardous liquid pipeline rupture. The ignition of gas escaping from a natural gas transmission pipeline during a catastrophic rupture can impact structures and people even if they are hundreds of feet from the site of the rupture. There are no broad empirical studies that provide a sufficient basis for quantifying the risks of various land uses or building types within specified distances of transmission pipelines.

Section 7 of the Appendix includes City of Redmond ordinances that specify setbacks around hazardous liquid pipelines.

D. Use of the One-Call System

Another option that local jurisdictions should consider is tying the local permit application process to the existing One Call system and its database (PRISM). Permit desks could either require that developers have their one-call ticket numbers before applying for a permit, or work out a direct communication process with the one-call system. This notification of a pending project would trigger a review by the pipeline operator, making it more likely that pipeline hazard concerns are addressed before the permit is issued.

4. Sample Permit Language Establishing a Consultation Process

The following language can serve as a model for a local consultation process ordinance. This sample language uses 660 feet from the pipeline for the consultation zone.

A model ordinance, developed by the MRSC, is included in this Section 7 (page C11).

A. Consultation Zone Notification

Whenever any individual applies for a development permit of any type within the consultation zone established for transmission pipelines, the staff at the permit counter shall notify the individual that 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.

Section 7 of the Appendix includes Whatcom County land regulations that require disclosure that a property is located within 660' of a significant oil/natural gas pipeline.

B. Application Procedure

Before issuing any permit that involves grade modification, excavation, or additional loading of the soil on property where a transmission pipeline easement is located, or if a transmission pipeline easement is within the designated consultation zone (e.g. six hundred and sixty (660) feet), the permit applicant must submit a detailed description of the proposed activity, including a map, diagram or depiction indicating the location of the proposed development activity and all transmission pipeline easements (or rights-of-way).

A complete application for any development permit within the consultation zone must include written verification from the applicant that:

- (1) The applicant has contacted the pipeline operator and has provided the pipeline operator with documentation detailing the proposed activity; and
- (2) The pipeline operator has reviewed the documents describing the proposed activity for compatibility with safe operation of the pipeline.

Note: The intent of the above application procedure is to require a permit applicant to develop clear plans showing the location of proposed activity and the location of any transmission pipeline easement.

The procedure also requires that the permit applicant review the proposed activity with the pipeline operator. The “written verification” could be in any form acceptable to the local government so long as there is documentation that the pipeline operator has been made aware of the proposed activity.

5. Additional Sample Permit Process Provisions

A. Construction/Excavation Buffer Zone

When significant construction or excavation activity is conducted pursuant to a permit issued by [*insert name of city or county*], all construction activity, including temporary storage of materials or vehicles, must be kept at least ten (10) feet from any transmission pipeline easement.

The buffer zone must be marked by a temporary construction fence or clearly flagged every ten (10) feet prior to the commencement of any work. The fencing or flagging is to be maintained until completion of all work.

B. Mapping Procedure

Every map prepared by the planning or engineering staff that contains data concerning the location of roads or other infrastructure must also contain data indicating the location of transmission pipeline easements.

C. Permit Center Procedure

Every informational brochure or permit issued by [*insert name of city or county*] concerning an activity that involves potential excavation must contain clear, concise information regarding the state “one call” requirements. This would include, for example, any brochures or permits involving fence regulations or the installation of irrigation systems, since those activities may involve digging deeper than 12 inches.

6. Consider Clustering Development Away from Transmission Pipelines

Local governments should consider adopting regulations that allow the clustering of development when proposed plats, planned unit developments, or binding site plans are crossed by, or adjoin, transmission pipeline easements. The intent is to provide flexibility when siting buildings, so that there can be a buffer area between the pipeline easement and the structures.

7. Examples of Existing City/County Regulations/Ordinances

A. Whatcom County

Whatcom County Development Standards -

<http://www.co.whatcom.wa.us/publicworks/engineering/documents/ch4landdivision.pdf>

Section 411. Right to Farm, to Practice Forestry, Mineral Resource, Land, Pipeline, and Airport Disclosure Notes.

D. Pipeline Disclosure

All short plats, long plats and binding site plans for land within 660' of a pipeline shown on Map 12, Chapter 5 of the Whatcom County Comprehensive Plan shall contain a notice of disclosure as follows:

The subject property is located within 660' of a significant oil/natural gas pipeline. This disclosure is pursuant to WCC 21.04.170/WCC 21.06.070/WCC 21.08.070 and is for notification purposes only. By approving this land division, Whatcom County assumes no responsibility for the safety, maintenance, or nuisance potential that may arise due to the proximity of the pipeline to this property.

Whatcom County Title 21 - Land Division Regulations -

<http://www.mrsc.org/mc/whatcom/whatco21/whatco21.html>

Chapter 21.04 - Short Subdivisions

Chapter 21.06 - Final Long Subdivisions

Chapter 21.08 - General and Specific Binding Site Plans

170 Disclosures and notes.

The following disclosures and notes, if applicable, shall be recorded in the county auditor's office and a statement identifying the subject and the auditor's file number for each such instrument shall be on the final short plat map under surveyor's notes prior to final approval by the county:

- Right to farm, right to practice forestry, mineral resource disclosures.
- Critical area notes.
- Boundary discrepancies.
- Protective covenants, conditions and restrictions.
- Drainage maintenance agreement block.
- Road maintenance agreement block (private roads only).
- Latecomers' agreements.
- Significant pipeline in vicinity disclosure when the subject property is within 660 feet of a pipeline shown on Map 12, Chapter 5 of the Whatcom County Comprehensive Plan.**

B. City of Redmond Ordinances No. 2137 (10/10/2002)**20D.55 Hazardous Liquid Pipelines –**

<http://www.ci.redmond.wa.us/insidcityhall/documentlibrary/pdfs/ORD2137.pdf>

20D.55.10 Purpose

The purpose of this section is to help prevent and minimize unnecessary risk to the public health, safety, and welfare due to hazardous liquid pipelines. Recognizing it is impossible to eliminate risk entirely, this section is intended to:

- (1) Minimize the likelihood of accidental damage to hazardous liquid pipelines due to external forces, such as construction equipment.
- (2) Avoid exposing land uses with high on-site populations that are difficult to evacuate and land uses that serve emergency functions to risk of injury or damage in the event of a pipeline failure.
- (3) Help reduce adverse impacts in the event of a pipeline failure.
- (4) Supplement existing federal and state regulations related to hazardous liquid pipeline corridor management.

The provisions of this section are intended to protect the health, safety and welfare of the general public and are not intended to protect any particular individual, class of individuals, or organization.

20D.55.20 Development Application Submittal Requirements

- (1) Applicants shall show the hazardous liquid pipeline corridor and applicable setbacks on site plans and subdivision plats when proposed development is located within 150 feet of the pipeline corridor. Minor modifications to existing structures that do not involve significant land disturbance on-site or changes to off-site improvements are exempt from this requirement.
- (2) The City shall require evidence that applicants and designees for private and public development have notified utilities through the one-call locator service before issuing development permits for land disturbance or other significant work on sites contiguous to the pipeline corridor.
- (3) All other applicable development application submittal requirements apply, see RCDG 20F, Administration and Procedures.

20D.55.30 Setback Requirements

- (1) Hazardous Liquid Pipeline Corridor. No significant land disturbance or construction or expansion of structures are allowed within the hazardous liquid pipeline corridor.
- (2) Areas Along the Hazardous Liquid Pipeline Corridor:
 - (A) Construction or expansion of structures or other activities involving significant land disturbance shall be setback a minimum of 25 feet from the edge of the hazardous liquid pipeline corridor.
 - (B) The Code Administrator may measure the setback from a hazardous liquid pipeline when measurement from the corridor is not appropriate due to site-specific conditions, such as an open easement.

- (C) The Code Administrator may expand the setback when necessary to meet the purpose of this section due to site-specific conditions, such as extraordinary land disturbance.
- (D) The Code Administrator may reduce the setback due to site-specific conditions and an applicant's demonstration that the purpose of this section will be met. Factors that may be considered include but are not limited to:
 - (i) Pipeline location as determined using normal locating procedures.
 - (ii) Type of construction proposed.
- (E) If the Code Administrator reduces the setback or measures it from a hazardous liquid pipeline, the following applies:
 - (i) The setback shall be a minimum of 30 feet from the nearest hazardous liquid pipeline and shall comply with 20D.55.30(1).
 - (ii) The setback shall be measured from the nearest edge of the hazardous liquid pipeline.
 - (iii) Applicants shall show the location of the hazardous liquid pipeline and setback on site plans and subdivision plats.
- (3) Exemptions. Streets, utilities, trails and similar uses shall be exempt from RCDG 20D.55.30(1) and (2).
- (4) Setback Protection. Setbacks shall be identified and protected during construction by placement of a temporary barricade and on-site notices. Barricades and on-site notices are subject to review by the Code Administrator.
- (5) Reasonable Use Provision.
 - (A) The required setback from the hazardous liquid pipeline corridor shall not deny all reasonable economic use of property. If an applicant demonstrates to the satisfaction of the Hearing Examiner that strict application of the required setback would deny all reasonable economic use of the property, the setback may be lessened subject to appropriate conditions.
 - (B) An applicant for relief from strict application of the required setback shall demonstrate the following:
 - (i) No reasonable economic use of the applicant's property can be made if the required setback is strictly applied; and
 - (ii) The proposed setback is the minimum necessary to provide the applicant with a reasonable economic use of the property; and
 - (iii) All reasonable mitigation measures have or will be implemented or assured; and
 - (iv) The inability to derive any reasonable economic use is not the result of the applicant's actions or those of the applicant's predecessors in title; and
 - (v) The pipeline location has been definitively determined.

- (C) As a condition of any relief granted under this section, the applicant shall be required to record an instrument against the title of the property notifying all subsequent purchasers of the fact that a lesser setback from the pipeline has been approved and of any and all conditions placed on the grant of relief.

20D.55.40 Requirements for Land Use Compatibility

(1) High Consequence Land Uses.

- (A) New high consequence land uses proposed for location within 500 feet of a hazardous liquid pipeline corridor are prohibited.
- (B) Proposed expansions to existing high consequence land uses located within 500 feet of a hazardous liquid pipeline corridor shall at a minimum be designed to avoid increasing the level of risk in the event of a pipeline failure, and where feasible, reduce the risk compared to the existing development. Potential techniques to minimize or reduce risk include but are not limited to:
- (i) Site design features, such as maintaining or increasing the distance between occupied structures, or structures that provide critical lifeline functions, and the hazardous liquid pipelines and anticipated flow paths for leaking hazardous materials.
 - (ii) Building features, such as design to avoid a significant increase in on-site population or to expedite evacuation.
 - (iii) Technological features, such as accelerated notice of a pipeline failure to the high consequence land use to facilitate evacuation or features that help to avoid damage in the event of a pipeline failure.
 - (iv) Operational features, such as emergency plans and education programs for occupants and employees concerning pipeline safety, developed in accordance with the procedures in 20D.55.40(2)(B)(ii).

Minor modifications to existing buildings are exempt from this requirement.

(2) Other Development.

- (A) Applicants for the following types of new or expanded development in the Willows/Rose Hill or Grass Lawn Neighborhoods shall use appropriate mitigation measures to help reduce adverse impacts in the event of a pipeline failure:
- (i) Commercial or industrial.
 - (ii) Multi-family.
 - (iii) Religious facilities.
 - (iv) High consequence land uses proposed for locations not covered by RCDG 20D.55.40(1).
 - (v) Other developments as required by the Code Administrator that, because of proximity to a hazardous liquid pipeline corridor, pose a safety concern due to characteristics of the occupants, development, or site.
- (B) Mitigation measures intended to reduce risk and minimize impact in the event of a pipeline failure include but are not limited to:
- (i) Site and building design techniques such as maximizing the distance between new or expanded development and anticipated flow paths for leaking hazardous materials and controlling ignition sources.

- (ii) Emergency procedures such as emergency plans and guides, employee training and drills, and education programs for occupants and employees concerning pipeline safety, such as what to be aware of and how to respond in the event of a problem.
 - (a) Applicants shall consult with the Fire Marshal regarding the level of emergency planning and procedures appropriate for the proposed development. Based on the nature, occupancy, or location of a proposed development, the Redmond Fire Chief may require emergency plans and procedures for any occupancy classifications.
 - (b) Emergency plans and procedures shall be consistent with the Redmond Fire Code and shall be approved by the Redmond Fire Chief.

C. Consultation Zone Model Ordinance - MRSC

ORDINANCE NO. _____

AN ORDINANCE ESTABLISHING A CONSULTATION ZONE FOR PERMITS FOR DESIGNATED ACTIVITIES WITHIN 660 FEET OF HAZARDOUS LIQUID OR NATURAL GAS TRANSMISSION PIPELINES

Whereas, hazardous liquid and natural gas transmission pipelines are a crucial part of our energy infrastructure; and

Whereas, transmission pipelines need to be protected from activities that may impact the integrity of the pipelines; and

Whereas, the best way to balance the interests of property owners, developers, and transmission pipeline operators is to make sure that the permitting agency and all relevant parties are aware of the plans, concerns and interests of the other parties; and

Whereas, early communication between the interested parties will assist with prudent land use permitting decisions;

NOW, THEREFORE, THE CITY [COUNTY] OF _____ DOES ORDAIN:

Section 1. Definitions.

(1) "Transmission Pipeline" means natural gas pipelines as defined in RCW 81.88.010 and all hazardous liquid pipelines.

(2) "Development Permit", for purposes of this consultation zone requirement, means 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, are specifically exempted from these consultation zone requirements.

Section 2. Consultation Zone Distance.

The consultation requirement applies to development permits involving any parcel that is within 660 feet of the centerline of a transmission pipeline easement. The 660 foot consultation zone distance may be lessened for certain development activities if the distance changes are first reviewed with the pipeline operator(s) and found to be consistent with prudent pipeline operation given the local conditions, such as terrain, soil types, etc. There must be written documentation from the pipeline operator(s) showing their agreement to any lessening of the consultation zone distance for certain types of development permits. The intent of this section is to provide flexibility and to avoid unnecessary paperwork and delays in the permitting process while also

making sure that all activities that may impact the integrity of a transmission pipeline are thoroughly reviewed.

Section 3. Consultation Zone Notification

Whenever any individual applies for a development permit within the consultation zone established for transmission pipelines, the staff at the permit counter shall notify the individual that 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.

Section 4. Complete Application for Development Permit within Consultation Zone.

A complete application for any development permit within the designated consultation zone must include written verification from the applicant that:

1. The applicant has contacted the pipeline operator(s) and has provided the pipeline operator(s) with documentation detailing the proposed development activity and where the activity is to take place; and
2. The pipeline operator(s) has reviewed the documents for compatibility with continued safe operation of the transmission pipeline(s).
3. The written verification required by this section can be in any form acceptable to the city [county], including electronic communications, so long as it is clear that the pipeline operator(s) has received and reviewed documentation showing the proposed activity and its location.

Section 5. SEPA Checklist.

A SEPA checklist submitted by an applicant for a development permit involving any parcel that is within 660 feet of the centerline of a transmission pipeline easement must reference the transmission pipeline(s) and provide information concerning any impact the activity will have upon the integrity of the transmission pipeline(s).

Section 6. Effective Date.

[Insert appropriate wording.]

PASSED/ADOPTED this ____ day of _____, 20____.

SIGNATURE LINE:

ATTEST:

APPROVED AS TO FORM:

PUBLISHED

Pipeline Resources

Many organizations have a stake in the safe operation of our nation's petroleum and natural gas pipelines. Many of these same organizations have informational Web sites where you can gather more information about pipelines and pipeline safety. Below is a description of each organization.

- **Pipeline Industry:**

American Gas Association (AGA) – The American Gas Association represents 189 local natural gas utilities that deliver gas to 54 million homes and businesses in all 50 states. Additionally, AGA provides services to member natural gas pipelines, marketers, gatherers, international gas companies and a variety of industry associates. (www.aga.org)

Northwest Gas Association (NWGA) – The Northwest Gas Association is a trade organization of the Pacific Northwest natural gas industry. Members include five natural gas utilities serving communities throughout Idaho, Oregon and Washington, and three transmission pipelines that move natural gas from supply basins into and through the region. The Association's mission is to advance the interests of the Pacific Northwest natural gas industry through education and advocacy. (www.nwga.org)

American Public Gas Association (APGA) – The American Public Gas Association is a nonprofit trade organization representing America's publicly owned natural gas local distribution companies (LDCs). APGA represents the interests of public gas before Congress, federal agencies and other energy-related stakeholders by developing regulatory and legislative policies that further the goals of our members. In addition, APGA organizes meetings, seminars, and workshops with a specific goal to improve the reliability, operational efficiency, and regulatory environment in which public gas systems operate. (www.apga.org)

Association of Oil Pipelines (AOPL) - The Association of Oil Pipe Lines is an unincorporated nonprofit organization started in 1947. As a trade association, the AOPL acts as an information clearinghouse for the public, the media and the pipeline industry. AOPL provides coordination and leadership for the industry's ongoing Joint Environmental Safety Initiative. AOPL also represents common carrier crude and product petroleum pipelines in Congress, before regulatory agencies, and in the federal courts. (www.aopl.org)

American Petroleum Institute (API) – The American Petroleum Institute provides a forum for all segments of the oil and natural gas industry to pursue public policy objectives and advance the interests of the industry. As a major research institute, API supports these public policy positions with scientific, technical and economic research. (www.api.org)

- **Federal Government :**

Department of Energy (U.S.) - The Department of Energy's overarching mission is enhancing national security. Responsibility for accomplishing this mission is shared between four principle program lines: National Defense Programs; Energy Programs; Environmental Program; and Science Program. The Energy and Science programs carry out activities related to hazardous liquid and natural gas pipelines. The goals of the DOE's Fossil Energy Oil and Gas R&D Program are to develop new technologies to keep our existing oil and natural gas fields pumping,

to find new fields with less environmental disturbance, and to deliver cleaner fuels more reliably. (www.doe.gov)

Federal Emergency Management Agency (FEMA) – On March 1, 2003, the Federal Emergency Management Agency (FEMA) became part of the U.S. Department of Homeland Security (DHS). FEMA's continuing mission within the new department is to lead the effort to prepare the nation for all hazards and effectively manage federal response and recovery efforts following any national incident. FEMA also initiates proactive mitigation activities, trains first responders, and manages the National Flood Insurance Program. (www.fema.gov)

Federal Energy Regulatory Commission (FERC) – The Federal Energy Regulatory Commission is an independent regulatory agency within the Department of Energy that: Regulates the transmission and sale of natural gas for resale in interstate commerce; Regulates the transmission of oil by pipeline in interstate commerce; Regulates the transmission and wholesale sales of electricity in interstate commerce; Licenses and inspects private, municipal and state hydroelectric projects; Oversees environmental matters related to natural gas, oil, electricity and hydroelectric projects; Administers accounting and financial reporting regulations and conduct of jurisdictional companies, and; Approves site choices as well as abandonment of interstate pipeline facilities. The Commission recovers all of its costs from regulated industries through fees and annual charges. (www.ferc.gov)

National Transportation Safety Board (NTSB) – The National Transportation Safety Board is an independent Federal agency that investigates every civil aviation accident in the United States and significant accidents in the other modes of transportation, conducts special investigations and safety studies, and issues safety recommendations to prevent future accidents. Safety Board investigators are on call 24 hours a day. (www.nts.gov)

Transportation Safety Institute, Pipeline Safety Division - The role of the Pipeline Safety Division of the Transportation Safety Institute (TSI) is to promote uniformity in the application of the pipeline safety regulations throughout the country. One of the most important aspects of TSI's pipeline safety program is to provide hands-on training for federal and state inspectors. They are given the opportunity to observe state-of-the-art techniques and equipment applications. This ensures that when making inspections in the field, the inspectors have skills, knowledge and abilities to make proper assessments. In an effort to foster consistency throughout the industry, the TSI staff has partnered with stakeholders and their training managers, developing unique relationships that further enhance pipeline safety training. Thus, TSI offers the only training of this type in the country, in that it relates to the communication and application of the Code of Federal Regulations relative to pipeline safety. (<http://www.tsi.dot.gov/divisions/pipeline/>)

Office of Pipeline Safety (OPS) - In the U.S. Department of Transportation (DOT), the Pipeline and Hazardous Materials Safety Administration (PHMSA) has public responsibilities for the safe and secure movement of hazardous materials to industry and consumers by all transportation modes, including the nation's pipelines. The Office of Pipeline Safety (OPS) is the federal safety authority for the nation's 2.3 million miles of natural gas and hazardous liquid pipelines. The OPS mission is to ensure the safe, reliable, and environmentally sound operation of the nation's pipeline transportation system. OPS safety jurisdiction over approximately 1.6 million miles of gas pipelines covers more than 3,000 natural gas gathering, transmission, and distribution operators, and approximately 52,000 master meter and liquefied natural gas (LNG) operators. OPS also regulates over 200 hazardous liquid pipeline operators owning and operating an estimated 155,000 miles of pipeline. OPS currently has approximately 70 employees: half work at Headquarters in Washington, DC, and the other half work in the five OPS regional offices located in Washington, DC; Atlanta, GA; Kansas City, MO; Houston, TX; and Lakewood, CO. (<http://ops.dot.gov>)

- **Washington State:**

Washington UTC Pipeline Safety Program - The Washington UTC Pipeline Safety Program inspects natural gas and hazardous liquid pipelines operating within and through the state of Washington. The UTC pipeline safety program is the lead inspector for all interstate pipeline inspections and incidents within the state of Washington. The UTC handles enforcement of intrastate pipeline violations while OPS handles enforcement authority over interstate pipelines. (www.wutc.wa.gov/pipeline)

Washington State Department of Ecology Spill Prevention, Preparedness, and Response Program - The Washington State Department of Ecology Spill Prevention, Preparedness, and Response Program protects Washington's environment, public health, and safety through a comprehensive spill prevention, preparedness, and response program. The Spills Program focuses on preventing oil spills to Washington waters and land and ensuring effective response to oil and hazardous substance spills whenever they occur. (<http://www.ecy.wa.gov/programs/spills/spills.html>)

Washington State Energy Facility Site Evaluation Council (EFSEC) - The Washington State Energy Facility Site Evaluation Council provides a "one-stop" siting process for major energy facilities in the State of Washington. The Council coordinates all of the evaluation and licensing steps for siting major energy facilities in Washington. If a project is approved, EFSEC specifies the conditions of construction and operation; issues permits in lieu of any other individual state or local agency authority; and manages an environmental and safety oversight program of facility and site operations. (www.efsec.wa.gov)

Office of the State Fire Marshal - The Office of the State Fire Marshal operates within the Washington State Patrol and provides emergency responder training, fire incident reporting and data collection, fire code review and adoption, construction plan review for fire sprinkler and alarm systems, and fire inspections of high risk occupancies housing elderly and vulnerable populations. (<http://www.wsp.wa.gov/fire/firemars.htm>)

- **Other:**

National Association of Pipeline Safety Representatives (NAPSR) – The National Association of Pipeline Safety Representatives is a non-profit organization of state gas pipeline safety directors, managers, inspectors and technical personnel who serve to support, encourage, develop and enhance pipeline safety regulation. (www.napsr.org)

Associated General Contractors of America (AGC) – The Associated General Contractors of America is an organization of qualified construction contractors and industry related companies dedicated to skill, integrity, and responsibility. Operating in partnership with its Chapters, the association provides a full range of services satisfying the needs and concerns of its members, thereby improving the quality of construction and protecting the public interest. (www.agc.org)

Common Ground Alliance (CGA) - The Common Ground Alliance is a nonprofit organization dedicated to shared responsibility in damage prevention and promotion of the damage prevention Best Practices identified in the Common Ground Study Report. Building on the spirit of shared responsibility resulting from the Common Ground Study, the purpose of the CGA is to ensure public safety, environmental protection, and the integrity of services by promoting effective damage prevention practices. Whether you are a facility owner or operator, locator, design professional, One-Call Center employee, excavator, contractor, or other stakeholder, ensuring the safety of those who work or live in the vicinity of underground facilities and protecting vital services is everyone's responsibility. (www.commongroundalliance.com)

National Association of State Fire Marshals (NASFM) - The National Association of State Fire Marshal is a not-for-profit corporation that represents the most senior fire official of each of the 50 United States and District of Columbia. State Fire Marshals' responsibilities vary from state to state, but Marshals tend to be responsible for fire safety code adoption and enforcement, fire and arson investigation, fire incident data reporting and analysis, public education and advising Governors and State Legislatures on fire protection. Some State Fire Marshals are responsible for fire fighter training, hazardous materials incident responses, wildland fires and the regulation of natural gas and other pipelines. Most members are appointed by Governors or other high-ranking state officials. NASFM's mission is two-fold: (1) To protect human life, property and the environment from fire; and (2) To improve the efficiency and effectiveness of State Fire Marshals' operations. (www.firemarshals.org)

National Utility Locating Contractors Association (NULCA) – The National Utility Locating Contractors Association is an organization of contract locators, facility owners, One-Call centers, excavators, S.U.E., and industry suppliers that share a common interest in safety and damage prevention. (www.nulca.org)

Underground Utility and Leak Locators Association (UULLA) – The Underground Utility and Leak Locators Association is a not-for-profit association of firms and individuals that are involved in providing underground utility and leak detection services to municipalities, private property owners, industry, engineers, architects and others. (www.uulla.org)

Pipeline Typology and Glossary

1. Pipeline Typology

The oil and gas industry has two main sectors: an upstream (oil and gas producing) sector and a downstream (refining, petrochemical manufacturing, marketing, and gas distribution) sector. Pipelines play a key role in and connect the two sectors. The pipeline system transports products from the oil or gas wellhead to industrial complexes and end-use customers. There are several types of pipelines: (a) flow lines and gathering pipelines; (b) feeder and transmission pipelines; (c) distribution pipelines; (d) product pipelines; and (e) chemical pipelines. Each of these lines has a different function.

Flow Lines and Gathering Pipelines: Pipelines are referred to as “flow lines” and “gathering lines” when they connect wells or other facilities such as batteries or gas processing facilities. Flow lines typically range in size from 2 to 4 inches in diameter, whereas gathering pipelines range from 4 to 12 inches in diameter. Flow lines and gathering pipelines transport natural gas, crude oil, produced water and a variety of hydrocarbon product mixtures.

Feeder and Transmission Pipelines: Pipelines connecting oil and gas fields with transmission pipelines are called “feeder pipelines”. Feeder pipelines normally carry liquid hydrocarbons such as crude oil, natural gas liquids, and high-vapor products such as propane and butane. Typically, feeder pipelines range in size from 6 to 20 inches in diameter. Transmission pipelines typically range in size from 20 to 48 inches in diameter. Transmission pipelines carry oil, natural gas, and natural gas liquids from the producing regions of the country to the marketplace.

Distribution Pipelines: Pipelines delivering natural gas from transmission pipelines to homes and businesses are called “distribution pipeline” systems. Distribution pipelines can be as large as 36 inches in diameter. However, most are much smaller, ranging in size from 1 to 6 inches in diameter. These pipelines generally operate at lower pressures than the transmission pipelines and are owned and operated by local distribution companies. Distribution pipelines are not specifically addressed in this Guideline.

Product Pipelines: Pipelines carrying refined products from refineries to distribution centers such as bulk-loading terminals are referred to as “product pipelines”. Product pipelines typically carry such refined petroleum products as gasoline, diesel, heating oil, or jet fuel. These pipelines range from 6 to 12 inches in diameter and normally operate at lower pressure than natural gas pipelines.

Chemical Product Pipelines: Most pipelines have been developed for the transportation of oil and gas. However, a number of pipelines are also used for the transportation of chemical products, which can be liquids or gases. Chemical products transported by pipeline include oxygen, nitrogen, ammonia, and ethylene, each with its own hazard potential. While these product pipelines are not specifically addressed in this Guideline, land use planning requirements related to these pipelines are essentially identical.

2. Glossary¹

API: American Petroleum Institute

ASME¹: American Society of Mechanical Engineers

Corridor (Pipeline): A pipeline corridor is a linear area where two or more pipelines (either part of the same or different pipeline systems) are closely grouped in a single right-of-way. (OPS)

Distribution Pipeline (Distribution Line): A distribution line is a line used to supply natural gas to the consumer. A distribution line is located in a network of piping located downstream of a natural gas transmission line. As defined in natural gas pipeline safety regulations, a distribution line is a pipeline other than a gathering or transmission line.

Easement: An easement is an acquired privilege or right, such as a right-of-way, afforded a person or company to make limited use of another person or company's real property. For example, the municipal water company may have an easement across your property for the purpose of installing and maintaining a water line. Similarly, oil and natural gas pipeline companies acquire easements from property owners to establish rights-of-way for construction, maintenance and operation of their pipelines. (OPS)²

Emergency: A present or imminent event that requires prompt coordination of actions or special regulation of persons or property to protect the health, safety and/or welfare of people or to limit damage to property.

Encroachment: Encroachment refers to the unauthorized use of a right-of-way in violation of the terms by which the right-of-way was established (e.g., easement).

Federal Energy Regulatory Commission (FERC): The Federal Energy Regulatory Commission is an independent regulatory agency within the Department of Energy that:

- Regulates the transmission and sale for resale of natural gas in interstate commerce;
- Regulates the transmission of oil by pipeline in interstate commerce;
- Regulates the transmission and wholesale sales of electricity in interstate commerce;
- Licenses and inspects private, municipal, and state hydroelectric projects;
- Oversees related environmental matters;
- Administers accounting and financial reporting regulations and conducts of jurisdictional companies; and

¹ This is a general glossary of terms related to pipelines and land use. Some of these terms may not be found in the report and its appendices.

² Pipeline Easement is a legal right, acquired from a property owner, to use a strip of land for installation, operation and maintenance of a pipeline. The widths of these easements vary considerably. (MRSC)

- Approves siting and abandonment of interstate pipeline facilities.

Gas: As used in pipeline safety regulations gas is considered to be natural gas, flammable gas, or gas which is toxic or corrosive. Gases are normally compared to air in terms of its density. Since the specific gravity of air is 1.0, any gas with a specific gravity less than 1.0 will rise and usually disperse. Gas having a specific gravity greater than 1.0 will fall and collect near the ground or in low-lying areas such as trenches, vaults, ditches, and bell holes. Such occurrences can be hazardous to human health and safety.

Hazardous Liquid: Pipeline safety regulations identify petroleum, petroleum products, or anhydrous ammonia as hazardous liquids.

High Consequence Area (HCA): A high consequence area is a location that is specially defined in pipeline safety regulations as an area where pipeline releases could have greater consequences to health and safety or the environment. Regulations require a pipeline operator to take specific steps to ensure the integrity of a pipeline for which a release could affect an HCA and, thereby, the protection of the HCA.

High Population Area: A high population area is an urbanized area, as defined and delineated by the U.S. Census Bureau, which contains 50,000 or more people and has a population density of at least 1,000 people per square mile. High population areas are considered high consequence areas.

High-Vapor Pressure Hydrocarbons: Such products as propane, butane and other natural gas liquids that can quickly convert to gaseous form at atmospheric pressure. Because they are more volatile, these liquids require pipelines with relatively high compression and other special engineering design.

Interstate Pipeline: An interstate pipeline is a pipeline that extends beyond the boundaries of one state. Technically speaking: An interstate pipeline is a pipeline or that part of a pipeline that is used in transportation of hazardous liquids or natural gas in interstate or foreign commerce.

Intrastate Pipeline: An intrastate pipeline is a pipeline or that part of a pipeline that is entirely contained within one state's borders. An intrastate pipeline system may be under a state's regulatory jurisdiction as long as that state has a pipeline safety and inspection program that meets or exceeds the federal program. The state may opt to have its intrastate pipelines regulated by federal inspectors.

Lateral: A lateral is a segment of a pipeline that branches off of the main or transmission line to transport the product to a termination point, such as a tank farm or a metering station.

Local Distribution Company (LDC): A local distribution company is a pipeline operator responsible for distributing natural gas locally to its customers. An LDC purchases gas from gas pipeline transmission companies for resale to the consumer.

LDC's operate and maintain the underground network piping, regulators, and meters that connect to each residential and commercial customer.

Locate: Locate refers to the process of determining the existence and location of an underground facility, such as an oil or gas pipeline, and indicating that location through the use of stakes, flags, paint or some other customary manner. Such markings identify the location of the underground facility so that excavators can avoid damage to the facility when digging.

Low-Vapor Pressure Hydrocarbons¹⁸: Such products as oil, synthetic oil and heavy oil, which flow through pipelines in liquid form.

Mitigation: Actions taken to alleviate, reduce the severity of, or moderate the consequences of failure.

Office of Pipeline Safety (OPS): OPS is the agency within the Pipeline and Hazardous Materials Administration (PHMSA), that is responsible for regulating the safety of design, construction, testing, operation, maintenance, and emergency response of U.S. oil and natural gas pipeline facilities.

One-Call System: A one-call system is a system that allows excavators (individuals, professional contractors, and governmental organizations) to make one telephone call to provide notification of their intent to dig to underground facility operators. The one call center will then notify all underground facility operator members of the intended excavation along with the date and location of the excavation. The facility operators or, in some cases, the one-call center can then locate the facilities before the excavation begins so that extra care can be taken to avoid damaging the facilities. All 50 states within the U.S. are covered by one-call systems. Most states have laws requiring the use of the one-call system at least 48 hours before beginning an excavation.

Operator: An operator is a company or person who is responsible for the operation, maintenance and management of the pipeline.

Pipeline: Used broadly, pipeline includes all parts of those physical facilities through which gas, hazardous liquid, or carbon dioxide moves in transportation. Pipeline includes but is not limited to: line pipe, valves and other appurtenances attached to the pipe, pumping/compressor units and associated fabricated units, metering, regulating, and delivery stations, and holders and fabricated assemblies located therein, and breakout tanks.

Pipeline Easement: a legal right, acquired from a property owner, to use a strip of land for installation, operation and maintenance of a pipeline. The widths of these easements vary considerably. (MRSC)

Pipeline Operator: A pipeline operator is a company or person who is responsible for the operation, maintenance and management of the pipeline.

Prevention: Actions taken to avoid pipeline damage or failure.

Rights-of-Way (ROW): A rights-of-way is a defined strip of land on which an operator has the rights to construct, operate, and/or maintain a pipeline. The operator may own a ROW outright or an easement may be acquired for specific use of the ROW. (OPS)

Risk: The potential for loss, injury or damage to occur.

Risk Assessment: Risk assessment is a step in the risk management process. Risk assessment is measuring two quantities of the risk, the magnitude of the potential loss, and the probability that the loss will occur. Risk assessment may be the most important step in the risk management process, and may also be the most difficult and prone to error. Once risks have been identified and assessed, the steps to properly deal with them are much more programmatical.

Setback: Minimum distances a house or building must be from the pipeline.

Temporary Working Space: An area of land within which certain activities are authorized for a specified purpose and period of time, typically of short duration.

Third Party Damage: Third-party damage includes all outside force damage to underground facilities (e.g., pipelines) that can occur during excavation activities. Responsibility for preventing underground facility damage is shared by all stakeholders.

Transmission Pipeline (Transmission Line): Transmission pipeline" means a gas pipeline that transports gas within a storage field, or transports gas from an interstate pipeline or storage facility to a distribution main or a large volume gas user, or operates at a hoop stress of twenty percent or more of the specified minimum yield strength.

Washington Utilities and Transportation Commission (WUTC): The Pipeline Safety Section of the WUTC is responsible to ensure public health and safety and environmental quality by:

- Conducting quality inspections of hazardous liquid and natural gas pipeline companies
- Improving safety laws and regulations
- Educating local communities on pipeline safety issues
- Providing technical assistance to local governments and communities