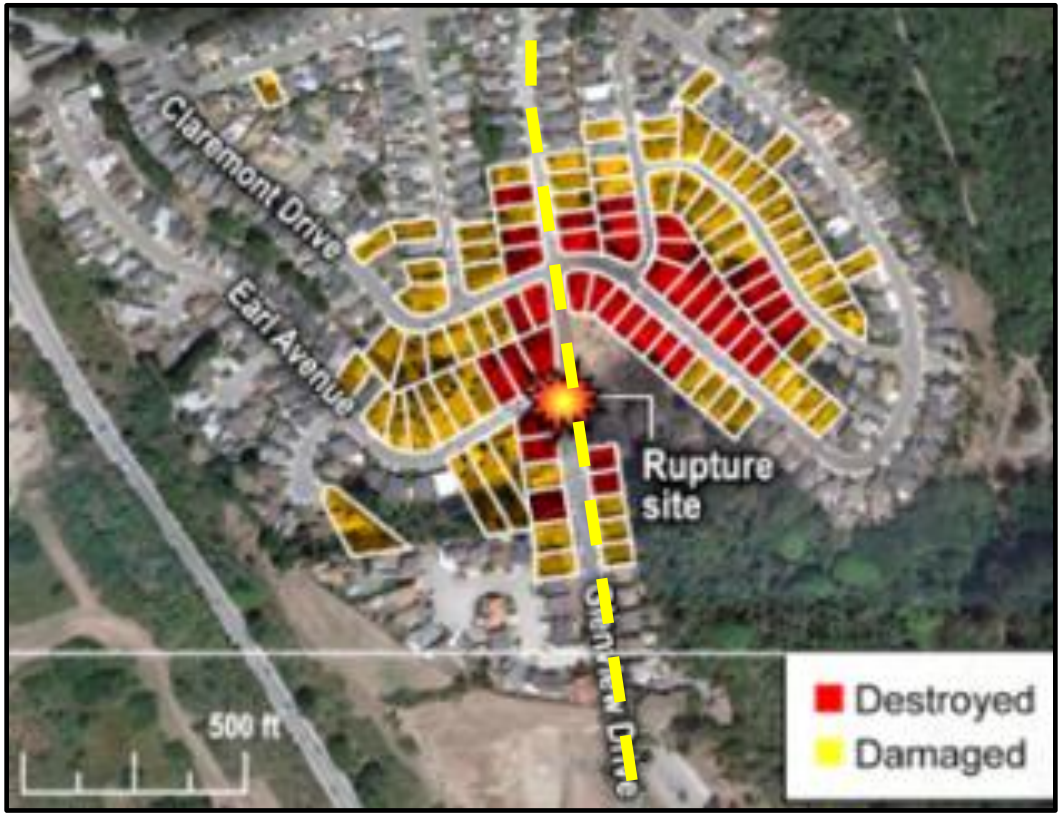
Land Use and Development Planning near Transmission Energy Pipelines
~ Ohio ~

April 24, 2013



~ Impact Area , Natural Gas Transmission Pipeline Explosion San Bruno, CA

U.S. Department of Transportation | Pipeline & Hazardous Materials Safety Administration

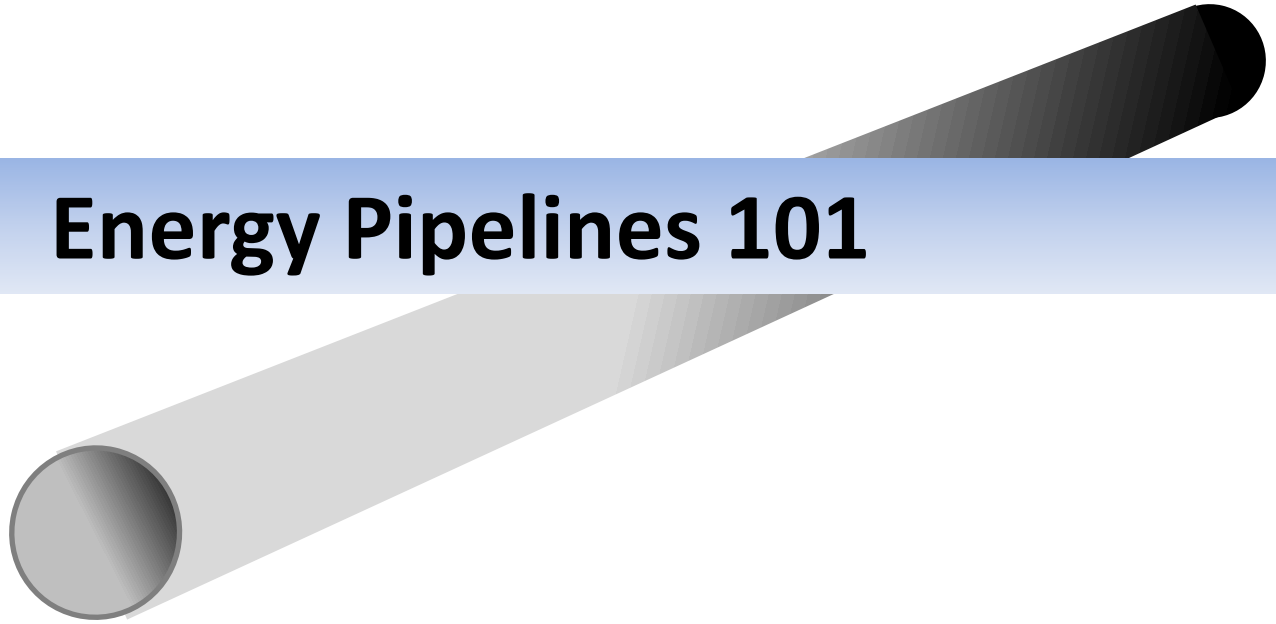
AICP CM Credits

- **AICP Session Title**
  - Land Use & Development Planning Near Transmission Pipelines in Ohio
  - #e.23342 Point of Contact - Julie.Halliday@dot.gov - 202-366-0287
- **Requirements to earn 1.25 AICP Certification Maintenance Credits**
  - Participant registers online PIPA-Info.com (then click on the link April 24, 2013 Land Planning Near Transmission Pipelines in Ohio (Mtg #88))
  - Participant attends entire webinar

Agenda

- Pipelines 101
- Benefit and Potential Impacts
- Government's role in Public Safety near Transmission Pipelines
- Examples of Risk-informed Practices
- Resources to Support Implementation

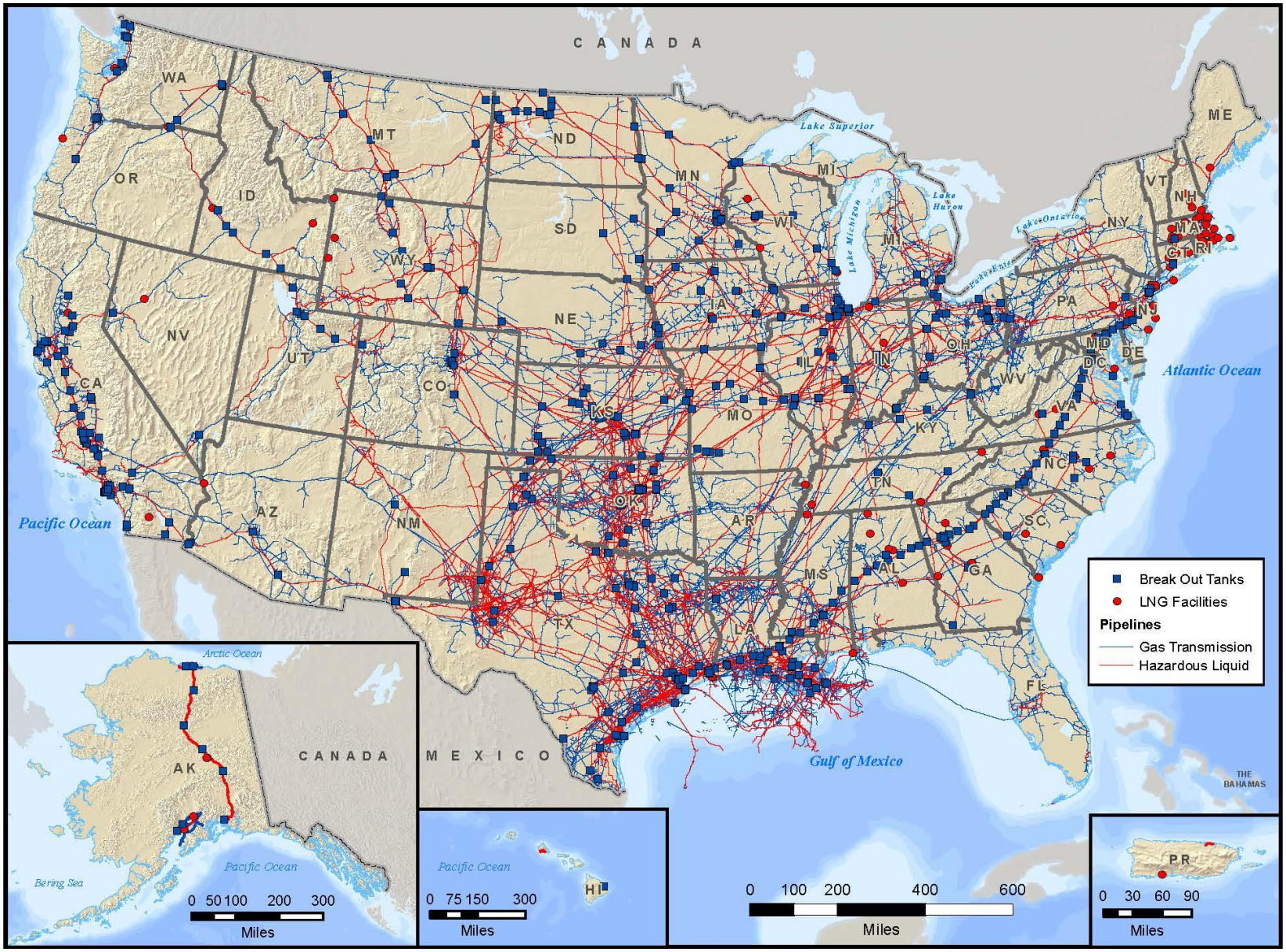
Energy Pipelines 101



U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration

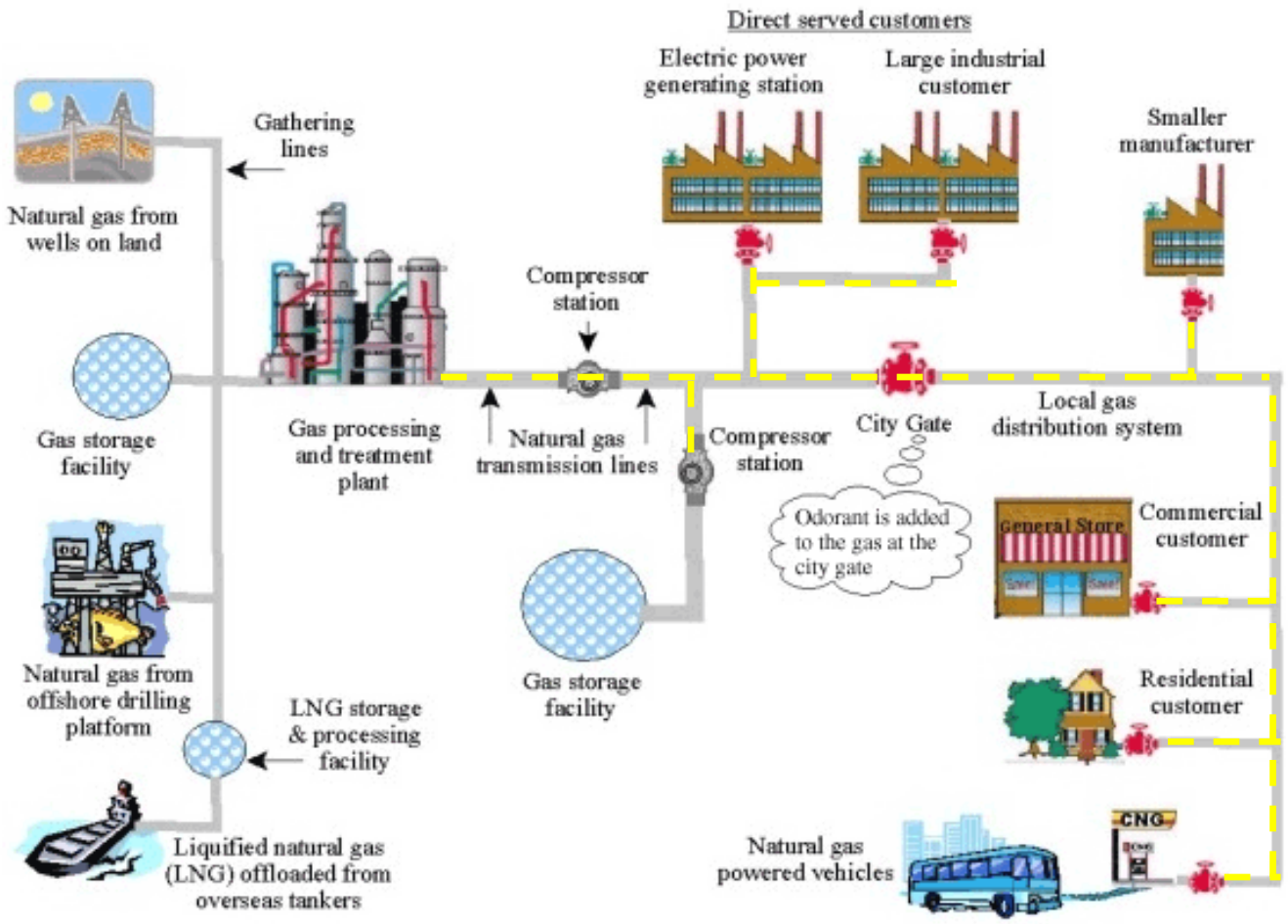
Gas Transmission and Hazardous Liquid Pipelines in the United States

National Pipeline Mapping System



U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration
Projection: Albers Equal Area Conic
Map Produced: November 2012

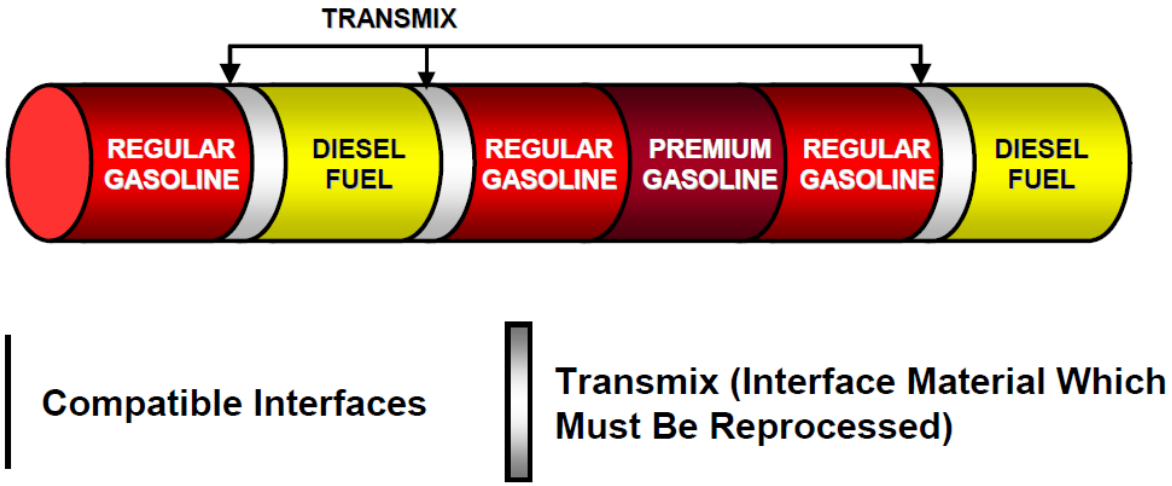
Natural Gas Pipeline Systems: From the Wellhead to the Consumer

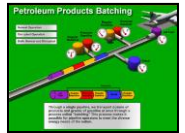


Typical Sequence of Petroleum Products Flow Through A Pipeline

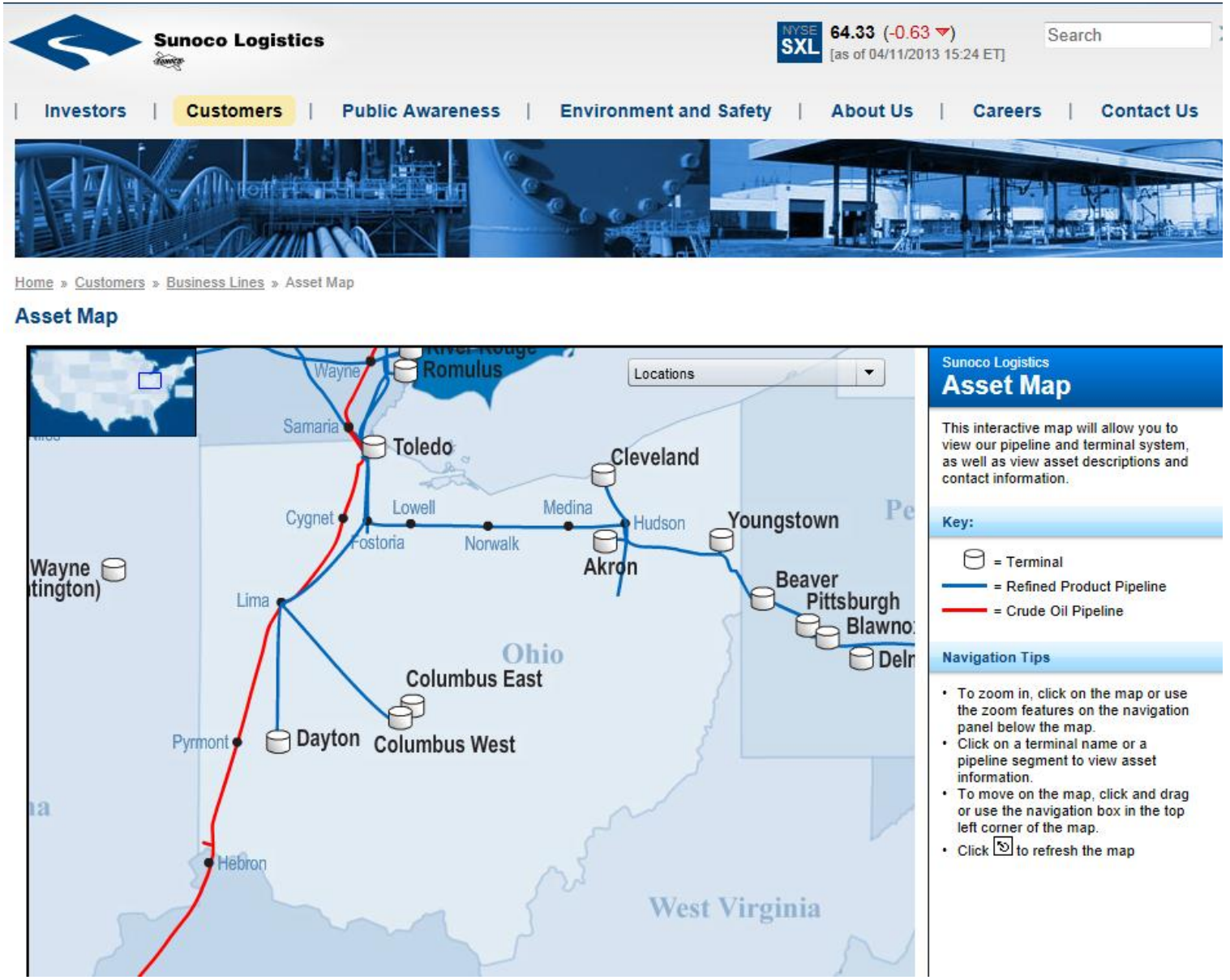
HL products transported:

- Gasoline
- Diesel fuel
- Kerosene
- Natural gas
- Heating oil
- Propane
- Aviation gasoline.
- Jet fuel
- Carbon dioxide (CO_2)
- Ethane
- Crude oil
- Coal
- Liquefied natural gas (LNG)
- Coal slurry



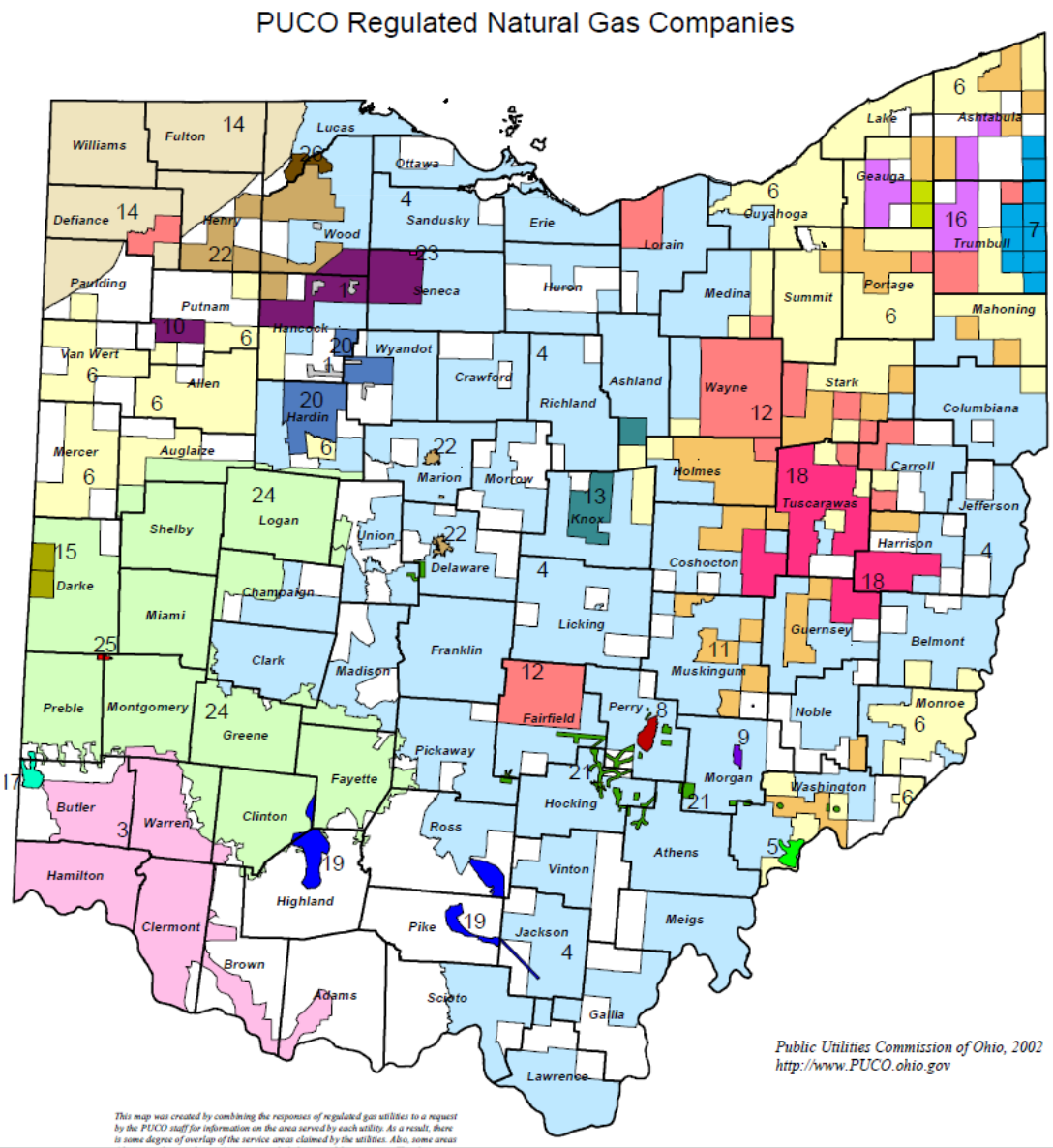


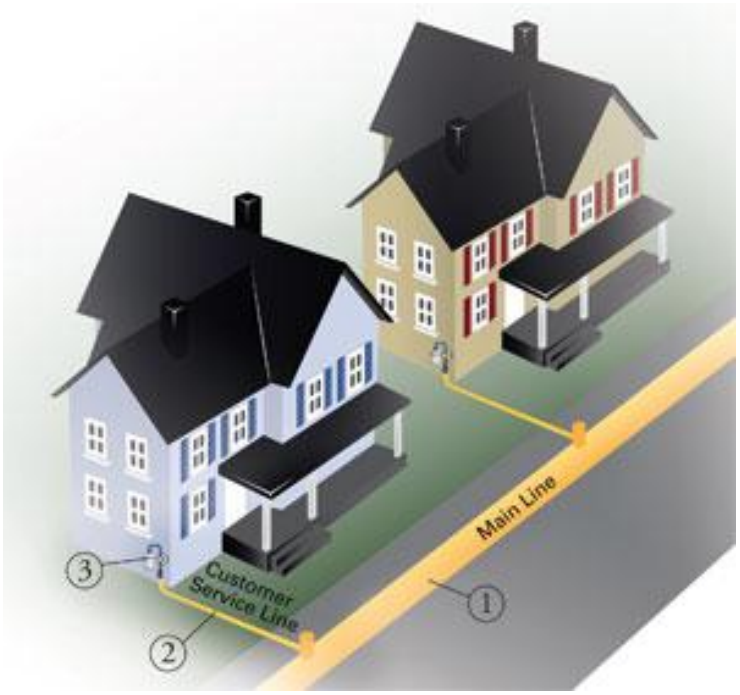
Petroleum Pipelines Example - Sunoco



http://www.sunocologistics.com/Customers/Business-Lines/Asset-Map/130/

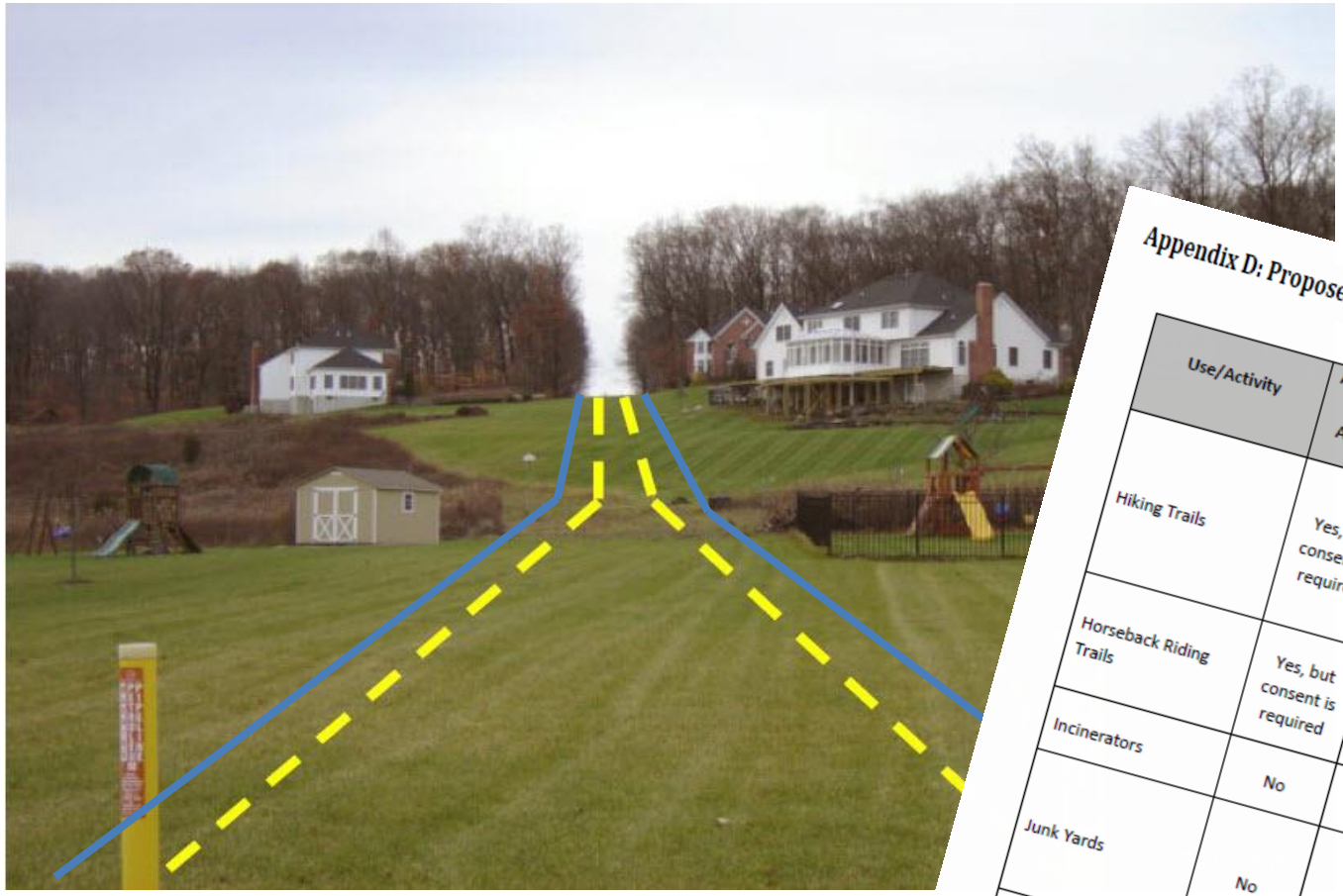
Natural Gas Distribution Companies in Ohio





http://www.puc.ohio.gov/emplibrary/files/Util/GIS/Gas_Maps/Ohio_Gas_Companies_2002_Size_A.pdf

Transmission Pipeline Right-of-Way



Appendix D: Proposed Land Uses for Transmission Pipeline ROW

PIPA Rep

Use/Activity	Acceptable Use or Activity?	Additional Restrictions or Comments	Origin/ Rational Acceptab
Hiking Trails	Yes, but consent is required	Provided reasonable access to facilities is maintained. See also Landscaping and Cuts and Fills.	Trails must be placed transmission pipeline maintenance, inspectio repair activities to be co
Horseback Riding Trails	Yes, but consent is required	Provided adequate access to facilities is maintained. See also Cuts and Fills.	Trails must be placed to a transmission pipeline maintenance, inspection an repair activities to be conduc
Incinerators	No		For safety reasons, no flame, f or flammable material is allowe
Junk Yards	No		This use would not allow transmission pipeline operators
Landscaping	Yes, but consent is required	Provided reasonable access to transmission pipeline facilities is maintained. See Cuts and Fills for earthwork requirements. In addition shrubs should not interfere	With trans flowe

Transmission Pipeline Right-of-Way

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

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

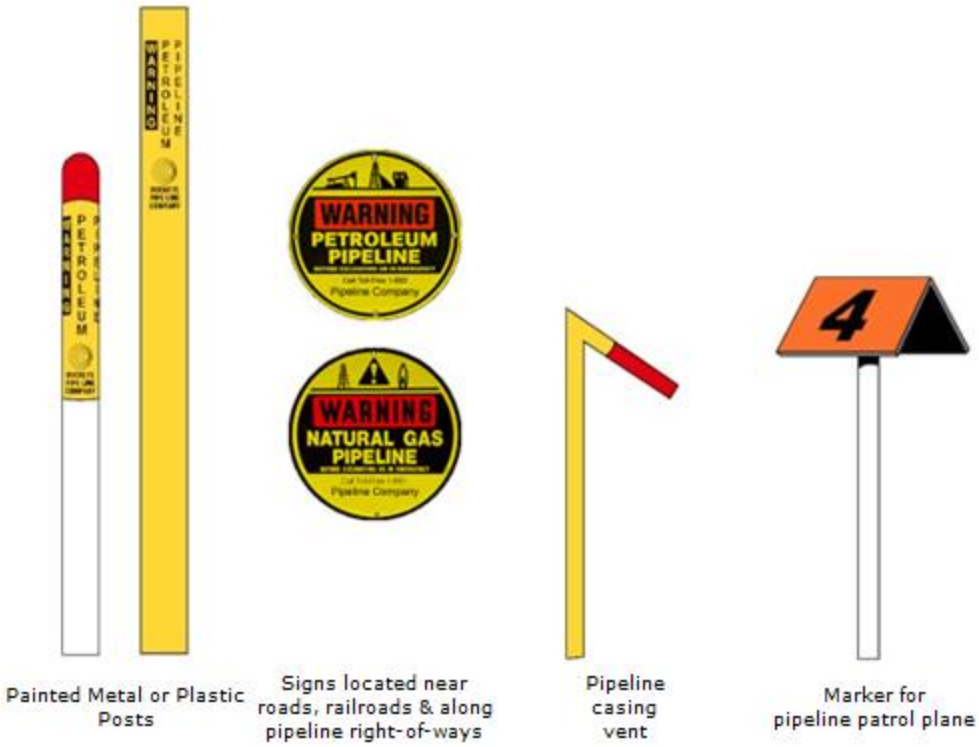
Audience Local Government, Property Developer/Owner, Transmission Pipeline Operator

Practice Description

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

In considering such uses, the stakeh
maintain it. Som

Identifying Transmission Pipelines in The Field



- **Provides an *indication* of their presence (not exact location), product carried and the name and contact information of the company that operates the pipeline.**
- **Pipeline markers are generally yellow, black and red in color.**

Valves

Pig Launcher

Oil Pipeline Repair

Pump Station & Tank Farm

Compressor Station

City Gate Station

Meter and Regulator Runs

Odorant Tank

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

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

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

Practice Description

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

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

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

Benefit and Potential Impacts

Benefits and P

Benefits

Safe, secure, cost efficient transportation

Fuel for:

- Motor vehicles, ships and airplanes
- Heating, water heat, cooking, drying
- Commercial – Bakery, dry cleaner, generators
- Industrial – glass and aluminum manufacturing
- Agricultural – corn dryer
- Power plants
- Military – largest single buyer in the world

Feedstock for food products, pharmaceuticals, plastics and resins

Some Examples of Commodities Moved in U.S. Pipelines:

For our vehicles:

- Gasoline
- Diesel fuel
- Kerosene
- Aviation gasoline
- Jet fuel

To heat our homes:

- Home heating oil
- Natural gas
- Propane

Feedstocks for Consumer Products:

- Crude oil
- Propylene
- Ethane
- Ethylene
- Carbon dioxide

For agriculture:

- Anhydrous ammonia (a fertilizer)
- Diesel fuel

Potential Impacts

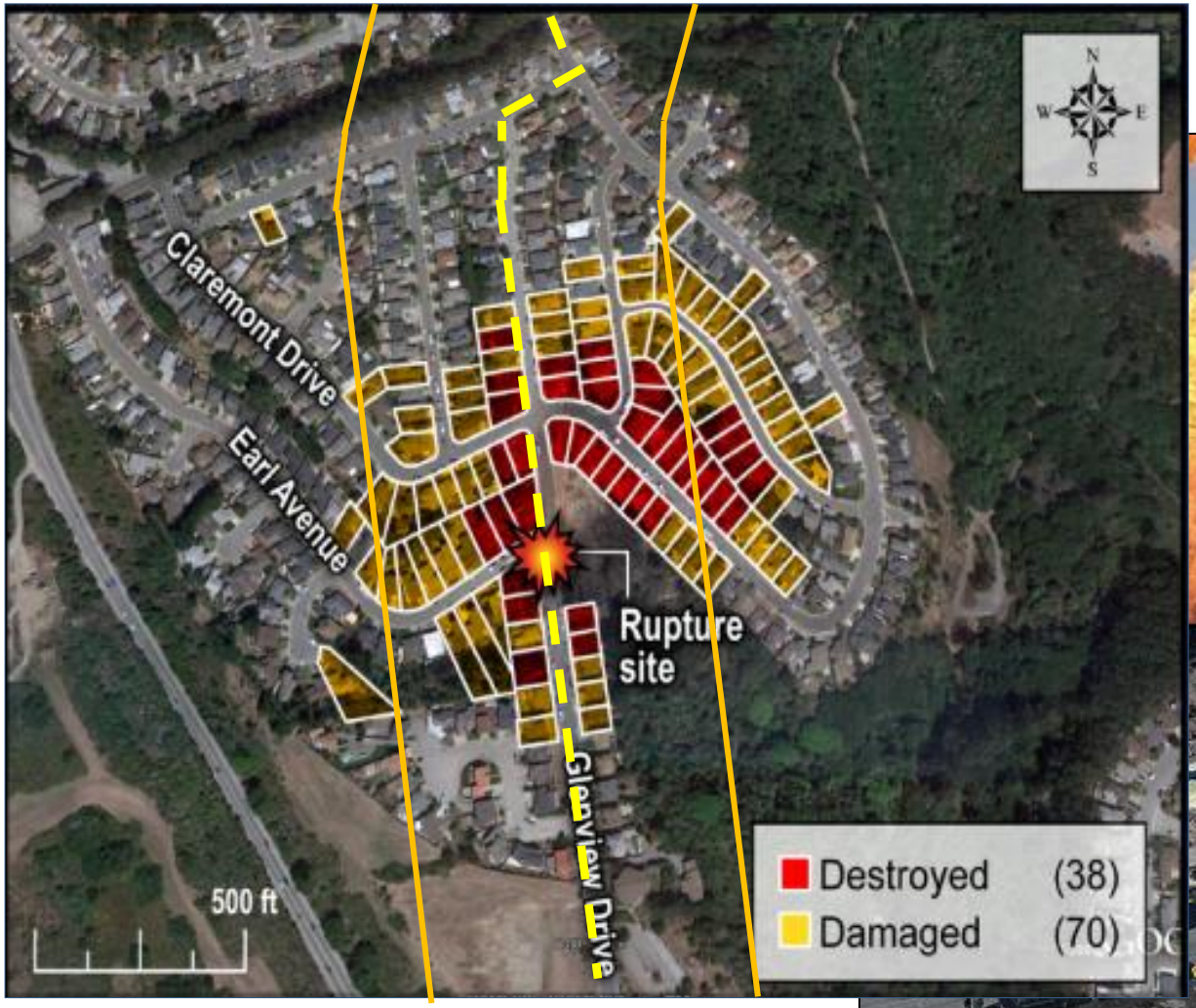
Potential Impacts

- Life Safety (health effects, injury, fatality)
- Environmental
- Property Cultural/historical
- Economic disruption or cessation
- Loss of confidence in government/operator
- Fear of another pipeline emergency

Gas Transmission Failure - Rural

Appomattox, VA 2008

Gas Transmission Failure - Suburban



Natural gas transmission pipeline fire in San Bruno, CA.

Natural Gas Distribution Failure

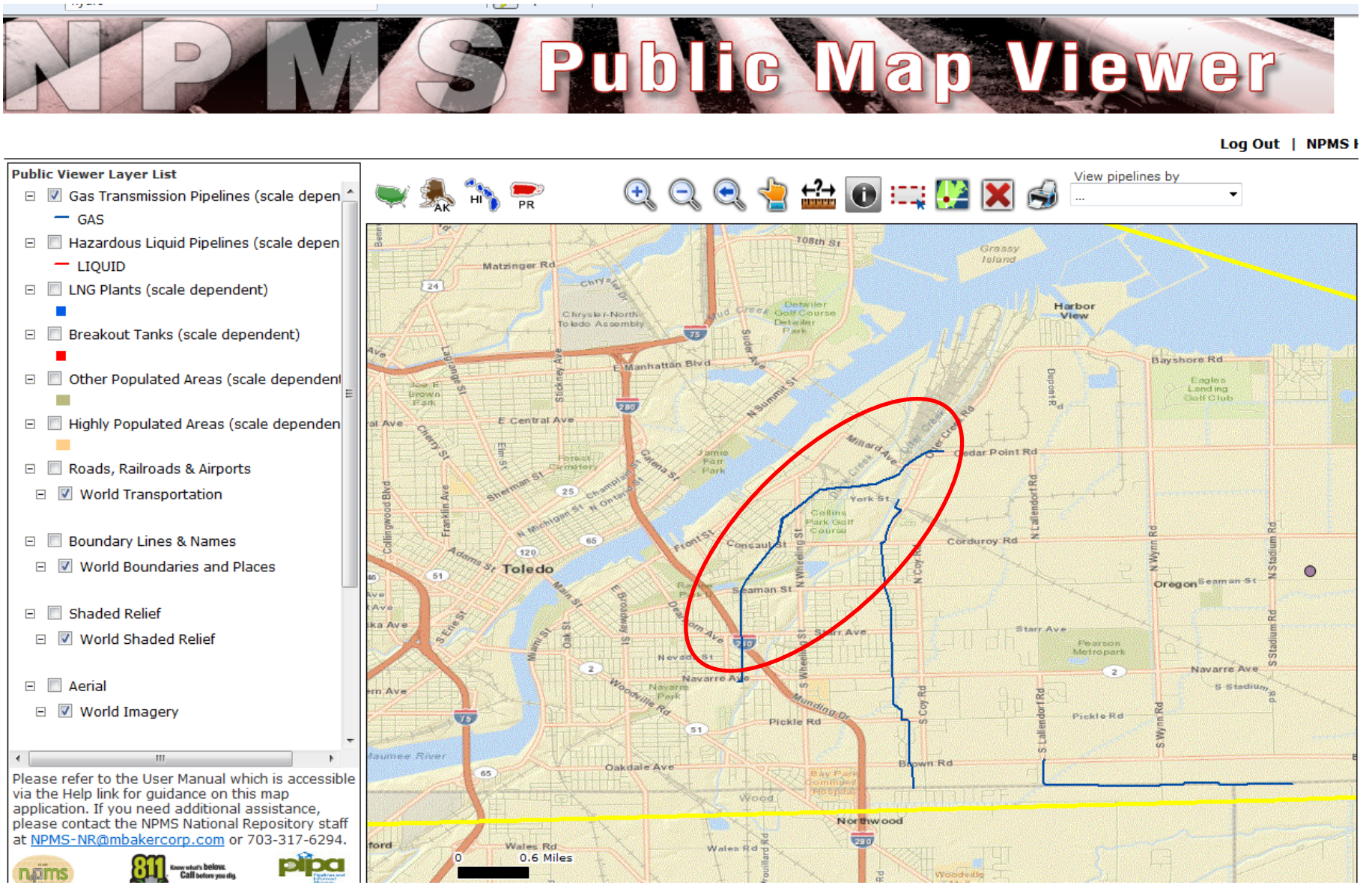
Natural Gas Distribution Explosion, Lewisville, TX - Jan. 2013

Hazardous Liquid Failure – Crude Oil

Mayflower, Arkansas - 2013

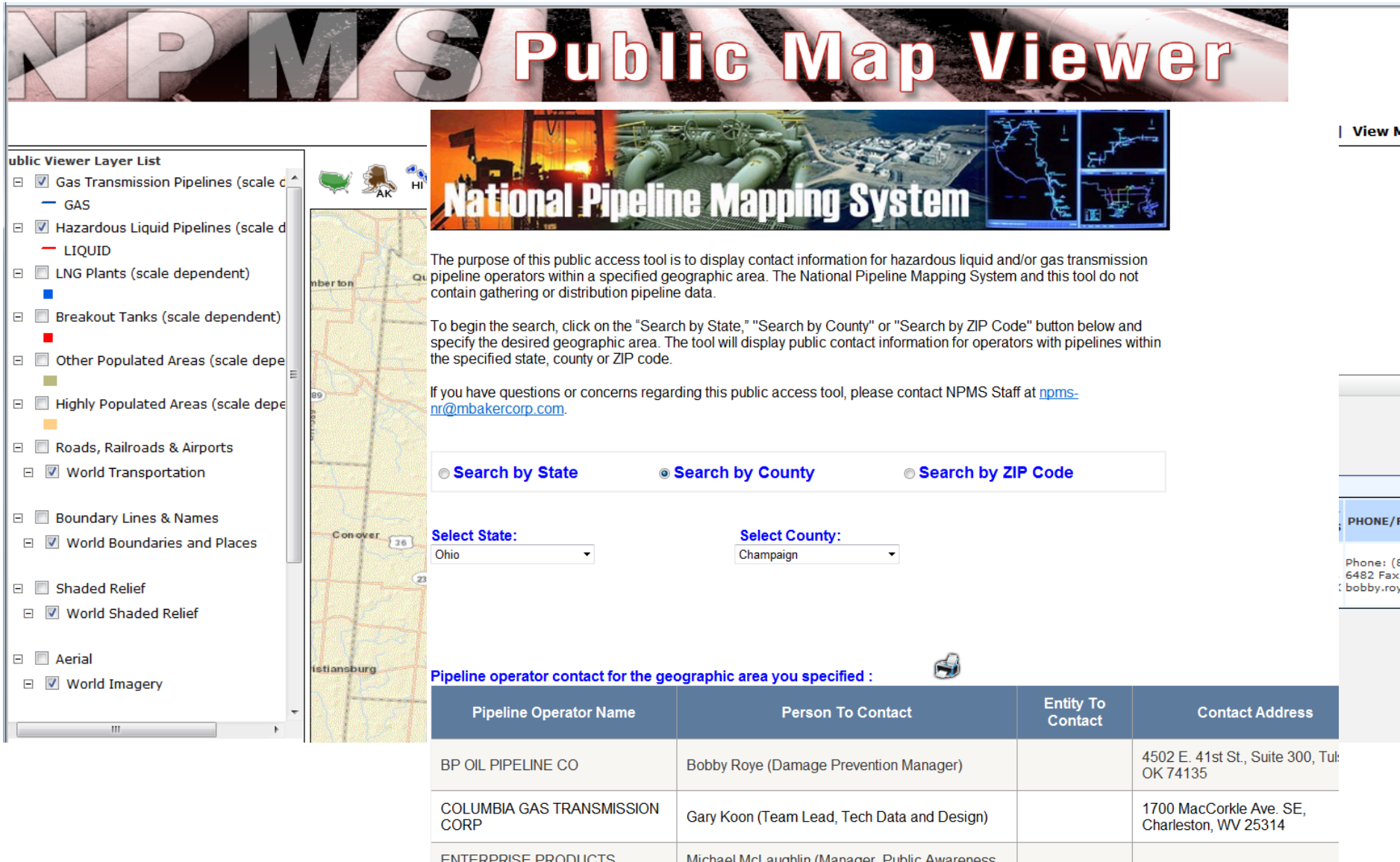
Example of a Highly Volatile Liquid - LPG

Hydrogen Pipeline



Pipeline Information for Ohio
PHMSA Stakeholder Communication Web Site

Champaign County – NPMS Public Viewer



OH Transmission Pipeline Mileage by County

Transmission Mileage by County	Gas Miles	Liquid Miles	Transmission Mileage by County	Gas Miles	Liquid Miles	Transmission Mileage by County	Gas Miles	Liquid Miles
ALLEN	62	260	GUERNSEY	256	0	MORROW	43	18
ASHLAND	341	41	HAMILTON	98	78	MUSKINGUM	316	9
ASHTABULA	21	0	HANCOCK	107	206	NOBLE	162	0
ATHENS	222	2	HARDIN	104	35	OTTAWA	39	18
AUGLAIZE	0	137	HARRISON	129	25	PAULDING	177	0
BELMONT	185	0	HENRY	64	0	PERRY	169	11
BROWN	9	0	HOCKING	322	19	PICKAWAY	197	40
BUTLER	145	106	HOLMES	84	13	PORTAGE	103	115
CARROLL	246	37	HURON	85	119	PREBLE	21	28
CHAMPAIGN	7	37	JACKSON	237	29	PUTNAM	26	0
CLARK	52	64	JEFFERSON	61	29	RICHLAND	268	33
CLERMONT	47	0	KNOX	115	0	ROSS	22	0
CLINTON	77	13	LAKE	39	0	SANDUSKY	128	40
COLUMBIANA	330	83	LAWRENCE	111	25	SCIOTO	152	0
COSHOCTON	56	52	LICKING	231	85	SENECA	198	123
CRAWFORD	68	1	LOGAN	25	43	SHELBY	34	68
CUYAHOGA	80	68	LORAIN	294	76	STARK	258	63
DARKE	73	2	LUCAS	83	211	SUMMIT	269	111
DEFIANCE	199	0	MADISON	79	22	TRUMBULL	57	32
DELAWARE	35	28	MAHONING	183	86	TUSCARAWAS	187	30
ERIE	67	0	MARION	86	56	UNION	32	47
FAIRFIELD	389	40	MEDINA	119	46	VAN WERT	35	42
FAYETTE	109	21	MEIGS	86	0	VINTON	143	14
FRANKLIN	110	74	MERCER	9	100	WARREN	176	60
FULTON	123	47	MIAMI	32	42	WASHINGTON	56	17
GALLIA	41	15	MONROE	165	0	WAYNE	168	73
GEAUGA	27	2	MONTGOMERY	137	67	WILLIAMS	18	46
GREENE	103	27	MORGAN	177	7	WOOD	145	373
						WYANDOT	69	39

Pipeline Mileage	Mileage
Hazardous liquid	3,908
Gas transmission	10,356
Gas Gathering	1,167
Gas distribution	56,824
Total pipeline mileage	72,256

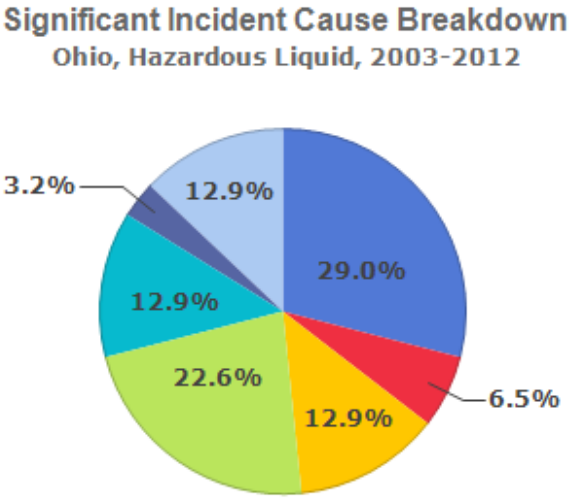
Table extracted from: http://primis.phmsa.dot.gov/comm/reports/safety/OH_detail1.html | Report generated on: 04/08/13

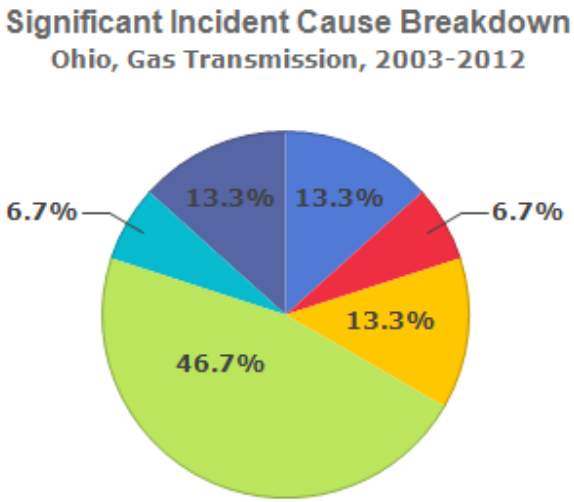
Commodity Transported via Pipelines in Ohio

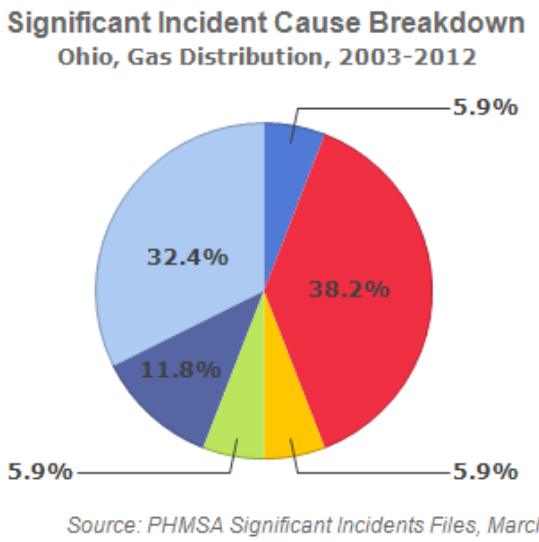
Transmission Mileage by Commodity

Commodity	Pipeline Miles	%
CRD - Crude Oil	530	3.6%
EPL - Empty Liquid	411	2.8%
HG - Hydrogen Gas	6	0.0%
LPG - Liquefied Petroleum Gas HVL (Highly Volatile Liquid)	426	2.9%
NG - Natural Gas	10,424	72.0%
NGL - Natural Gas Liquids HVL (Highly Volatile Liquid)	57	0.3%
OHV - Other HVL (Highly Volatile Liquid)	194	1.3%
OTG - Other Gas	16	0.1%
PRD - Refined Products	2,410	16.6%
Totals	14,475	100%

What Causes Pipeline Failures?







Source: PHMSA Significant Incidents Files, March 29, 2013

- CORROSION
- EXCAVATION DAMAGE
- INCORRECT OPERATION
- MAT'L/WELD/EQUIP FAILURE
- NATURAL FORCE DAMAGE
- OTHER OUTSIDE FORCE DAMAGE
- ALL OTHER CAUSES

http://primis.phmsa.dot.gov/comm/reports/safety/SigPSIDet_2003_2012_OH.html?

National and Jurisdiction-Specific Pipeline Risk

U.S. Department of Transportation | Pipeline & Hazardous Materials Safety Administration

Pipeline Safety Stakeholder Communications
Pipeline Safety Connects Us All

Home | General Public | Emergency Officials | Local Officials | Excavators | Property Developer/ Owner | Pipeline Safety Advocates | State Regulators | Federal Agencies | Industry | Contact Us

Pipeline Incidents and Mileage Reports

- Safety Reports
  - Safety Stats Home
  - State Detail Reports
- Serious Incidents
  - Summary
  - Cause Specific
- Significant Incidents
  - Summary
  - Cause Specific
  - Consequences
- All Incidents
  - Summary
  - Cause Specific
- Data Access

Site Pages
- About Pipelines
- Regulatory Oversight
- Safety Programs
- Public Outreach

State Pipeline Profiles: Choose One...

Print

PHMSA is committed to a data-driven approach t

The reports provided below present information and v over the past 20 years

Serious Incidents
Tables and charts about pipeline incidents involving a fatality o

Significant Incidents
Tables and charts pertaining to pipeline incidents which meet a value for property damage, value or volume of product lost an

All Reported Incidents
Tables and charts covering all pipeline incidents reported to PH changed over time. Serious and Significant Incident data sets a

Consequences to the Public and the Pipeline Ind
Pipeline incidents affect both the general public and the pipelin these stakeholder groups.

Directory of State Detail Reports
A detailed profile of the pipeline system including incidents and

Incident Data Access
Download the raw data used to generate the reports above.

The reports provided here are generated from numero collection, evolving methods of oversight and multiple over various file formats, normalized incident costs ov with the goal of producing a coherent and meaningful to produce your own analysis, the raw data used in th

Please note that in some of these reports, the costs a of gas lost during a pipeline incident using the Energy applied the Bureau of Economic Analysis, Government

Feedback | Information Highlights | Privacy Policy | Accessibi

Pipeline & Hazardous Materials Safety Administration

Pipeline Safety Stakeholder Communications
Pipeline Safety Connects Us All

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Site Pages
- About Pipelines
- Regulatory Oversight
- Safety Programs
- Public Outreach

State Pipeline Profiles: Choose One...

Print

Ohio

Pipelines in Ohio may include large-diameter lines carrying energy products to population centers, as well as small-diameter lines that may deliver natural gas to businesses and households in your neighborhood. The energy products carried in pipelines fuel our lives and our livelihoods. They heat our homes and schools, power our industrial base and enable our daily commutes.

Pipelines are by far the safest method for transporting energy products. However, when pipeline incidents occur they can present significant risks to the public and the environment. That's why we encourage everyone in Ohio to learn about pipelines and the products they carry, as well as a few simple steps you can take to help us ensure pipeline safety in your community.

Ohio pipeline profile: incident and mileage data
To see Ohio pipeline incident and mileage data click here. More...

Ohio pipeline profile: enforcement data
To see Ohio enforcement data click here. More...

Call Before You Dig!
Remember, before you dig or excavate, you are required by law to contact your local One-Call center and request to have underground facilities located. The call is free and there is no cost to you for the service. To contact your One-Call center dial 811, or click here for the Dig Safely Directory of toll free One-Call phone numbers. More...

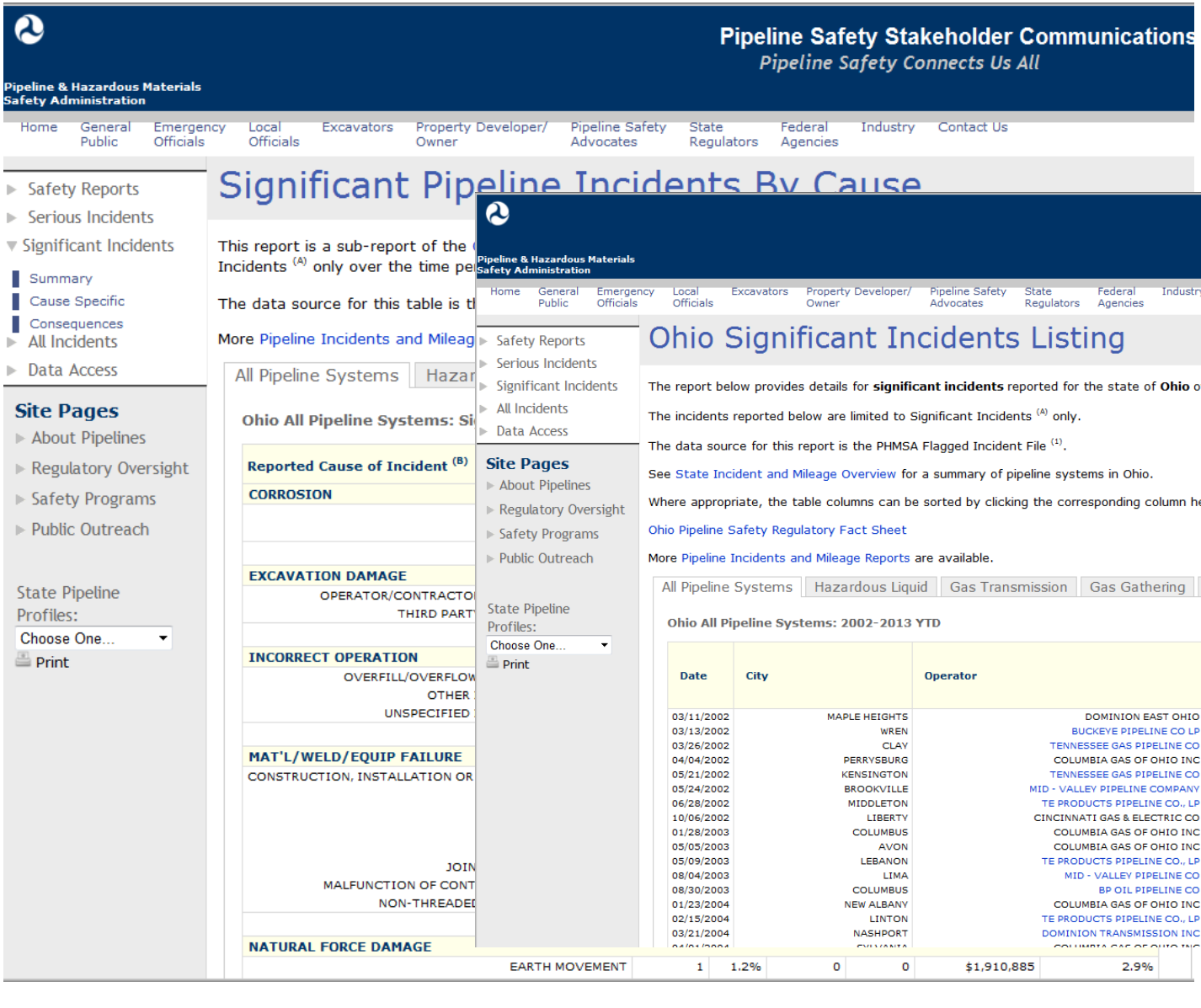
Who operates pipelines in your area?
OPS and the National Pipeline Mapping System enable you to find out simply by entering your ZIP Code into a search field. More...

Who regulates pipelines in Ohio?
OPS and the state of Ohio share regulatory responsibilities through a cooperative agreement. Ohio regulatory fact sheet More...

The role of the states in pipeline safety
OPS is authorized to delegate to the states all or part of the responsibility for regulation of intrastate pipelines. The

primis.phmsa.dot.gov/comm

Ohio – Risk Statistics & Details



Enforcement Actions

Ohio Enforcement Program

Operator compliance with state and federal pipeline safety regulations is monitored through a comprehensive inspection and enforcement program. The program is comprised of field inspections of operations, maintenance, and construction activities; programmatic inspections of operator procedures, processes, and records; incident investigations and corrective actions; and through direct dialogue with operator management. The agency or agencies below work in partnership with the federal Pipeline and Hazardous Materials Safety Administration (PHMSA) to assure pipeline operators are meeting requirements for safe, reliable, and environmentally sound operation of their facilities. The tables below provide a summary of probable violations discovered and compliance actions taken by the agency(ies) as a result of these activities. These data are reported annually as part of the state's annual pipeline safety program certification or agreement to PHMSA. Information on enforcement actions taken by PHMSA is available at the Pipeline Safety Enforcement Program homepage.

Probable Violations | Compliance Actions

A compliance action is an action or series of sequential actions taken to enforce pipeline regulations. One compliance action can cover multiple probable violations. A compliance action may take the form of a letter warning of future penalties for continued violation, an administratively imposed monetary sanction or order directing compliance with the regulations, an order directing corrective action under hazardous conditions, a show-cause order, a criminal sanction, a court injunction, or a similar formal action. This table provides the number of compliance actions taken by the state agency in each year. It also provides the number and amount of civil penalties that were assessed each year to pipeline operators and the number and amount of civil penalties that were collected each year from operators. Because there are occasions where a civil penalty is assessed in one year but not collected until a following year, the amount assessed and collected in a given year may not always be the same. [A]

Gas: Compliance Actions: 2002-2011 [1]

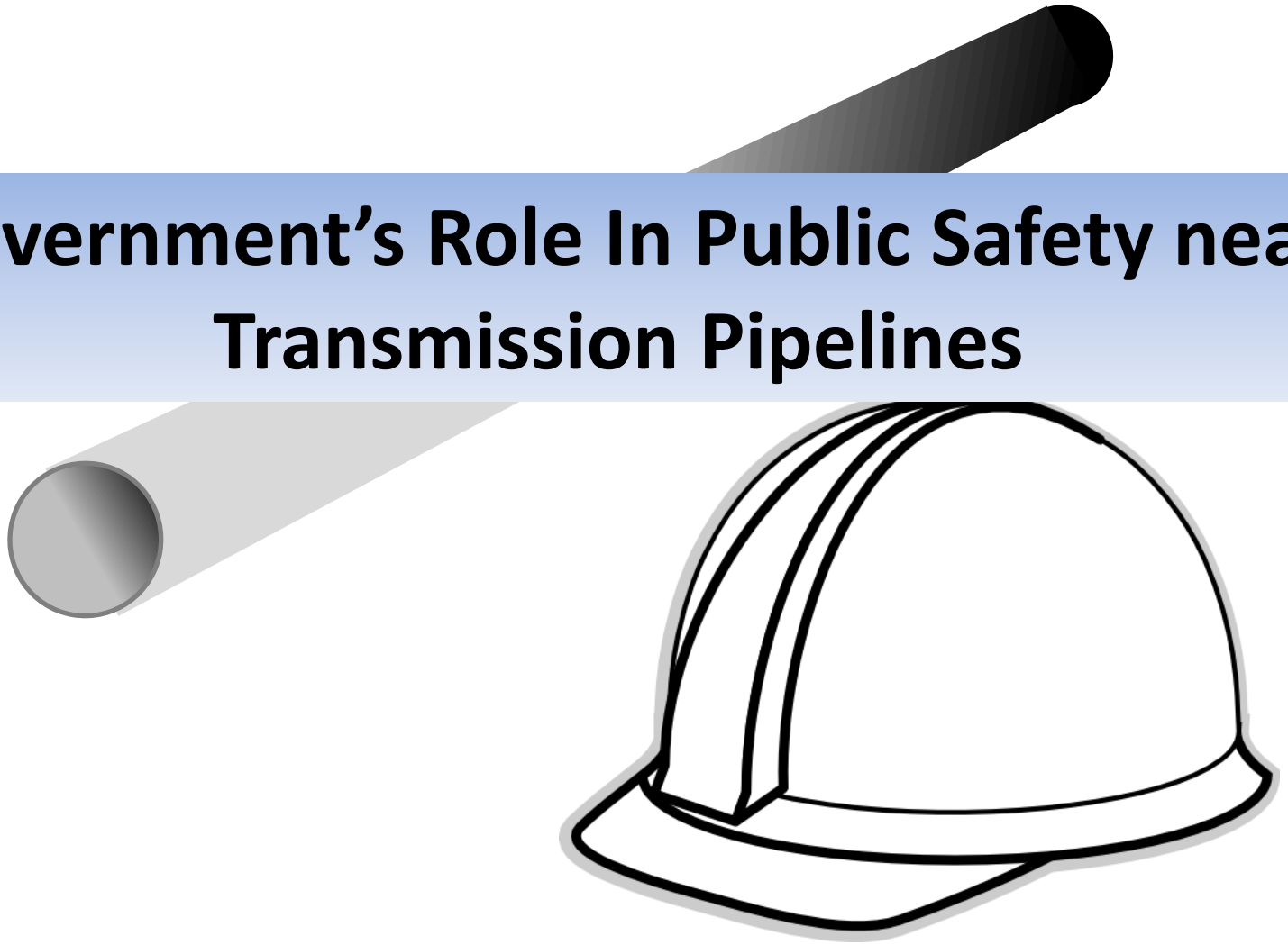
Year	Compliance Actions Taken	Number of Penalties Assessed	Dollars Assessed	Number of Penalties Collected	Dollars of Penalties Collected
PUBLIC UTILITIES COMMISSION OF OHIO					
2001	42	2	105,000	2	105,000
2002	21	0	0	0	0
2003	21	0	0	0	0
2004	22	0	0	0	0
2005	30	0	0	0	0
2006	11	1	20,000	1	7,500
2007	37	1	500,000	1	250,000
2008	22	1	330,000	1	30,000
2009	26	0	0	0	0
2010	27	1	10,000	1	10,000
2011	36	1	500,000	0	0

All Significant Pipeline Incidents OH

Ohio All Pipeline Systems: 2003-2012

Year	Number	Fatalities	Injuries	Property Damage (B) (C)	Gross Barrels Spilled (Haz Liq)	Net Barrels Lost (Haz Liq) (D)
2003	5	0	1	$1,090,044	412	354
2004	9	2	1	$2,490,622	1,902	1,902
2005	5	1	0	$7,587,803	1,474	669
2006	9	0	2	$2,315,815	276	75
2007	7	0	0	$1,650,582	357	289
2008	6	0	1	$6,873,526	488	1
2009	11	1	3	$9,848,685	2,414	804
2010	7	1	7	$2,448,649	10	0
2011	13	2	6	$8,248,740	162	20
2012	8	0	5	$23,077,219	1,950	1,221
Totals	80	7	26	$65,631,690	9,446	5,335
2013 YTD	0	0	0	$0	0	0
3 Year Average (2010-2012)	9	1	6	$11,258,203	708	414
5 Year Average (2008-2012)	9	1	4	$10,099,364	1,005	409
10 Year Average (2003-2012)	8	1	3	$6,563,169	945	534

Government's Role In Public Safety near Transmission Pipelines



Who Regulates Pipeline Safety…Federal

Office of Pipeline Safety

Hazardous Materials Safety

FERC
FEDERAL ENERGY REGULATORY COMMISSION

U.S. DEPARTMENT OF STATE
DIPLOMACY IN ACTION

Code of Federal Regulation
Pipeline Safety - Title 49 Part 190 - 199

SUBCHAPTER D--PIPELINE SAFETY

186-189		[Reserved]
190	190.1 to 190.341	PIPELINE SAFETY PROGRAMS AND RULEMAKING PROCEDURES
191	191.1 to 191.27	TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE; ANNUAL REPORTS, INCIDENT REPORTS, AND SAFETY-RELATED CONDITION REPORTS
192	192.1 to 192.1015	TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS
193	193.2001 to 193.2917	LIQUEFIED NATURAL GAS FACILITIES: FEDERAL SAFETY STANDARDS
194	194.1 to 194.121	RESPONSE PLANS FOR ONSHORE OIL PIPELINES
195	195.0 to 195.589	TRANSPORTATION OF HAZARDOUS LIQUIDS BY PIPELINE
196-197		[Reserved]
198	198.1 to 198.39	REGULATIONS FOR GRANTS TO AID STATE PIPELINE SAFETY PROGRAMS
199	199.1 to 199.245	DRUG AND ALCOHOL TESTING

State Pipeline Safety Regulation
The Public Utilities Commission of Ohio

Ohio.gov State Agencies | Online Services

THE PUBLIC UTILITIES COMMISSION OF OHIO

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Natural Gas Pipeline Safety in Ohio

The PUCO is committed to ensuring the safe, reliable and environmentally sound operation of Ohio's natural gas pipeline system. PUCO investigators inspect each natural gas pipeline system in the state at least once every two years and review records and procedures implemented by utilities. When violations are detected, the PUCO orders corrective action and may assess fines and other penalties to ensure that Ohio's natural gas pipeline systems continue to deliver natural gas safely and reliably.

Printer Friendly Version

Natural Gas Pipeline Safety In Ohio

Viewing PDF files requires the Adobe Acrobat Reader.

What rules and regulations apply to natural gas pipelines?

Natural gas pipeline safety rules are developed by the U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration (PHMSA). The state of Ohio has adopted the federal regulations, and the Public Utilities Commission enforces the regulations through a cooperative agreement with the federal government.

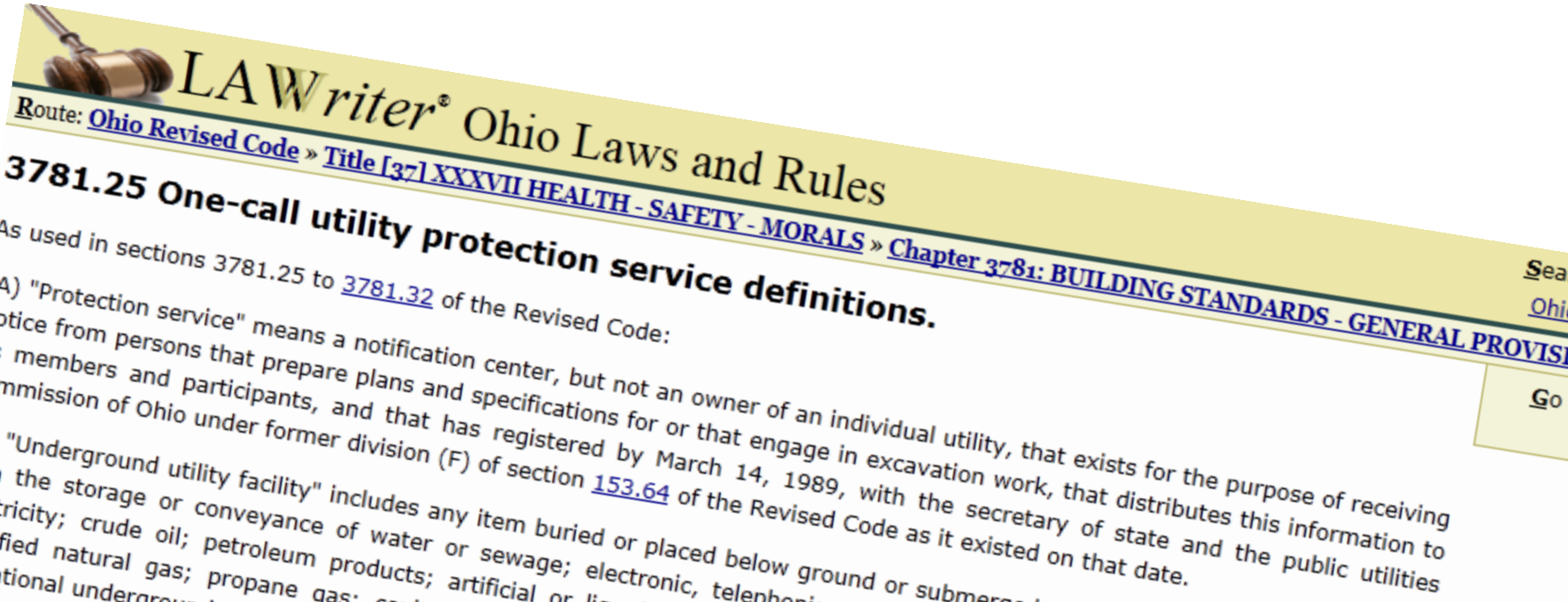
What is the general condition of natural gas pipelines in Ohio?

The condition of Ohio natural gas pipeline network varies by operator. Each operator has the obligation to demonstrate that their piping is in a condition that meets or exceeds the minimum federal safety standards. Most high pressure transmission lines are constructed with protected steel. Lower pressure distribution lines are made from plastic or steel, and older lines may be made from steel, cast iron or copper. Each operator submits an annual report to the PHMSA describing their pipeline network including the type of piping used and number of leaks detected and repaired. This data is available online at http://www.phmsa.dot.gov/pipeline/library/data-stats.

Are operators required to replace pipes after they

Ohio Pipeline Safety & Excavation Damage Prevention Codes

- **Ohio Administrative Code - Chapter 4901:1-16 Gas Pipeline Safety**
- **Ohio Utility Protection Law ORC 3781.25-32**



LAWriter® Ohio Laws and Rules

Route: Ohio Revised Code » Title [37] XXXVII HEALTH - SAFETY - MORALS » Chapter 3781: BUILDING STANDARDS - GENERAL PROVISI

3781.25 One-call utility protection service definitions.

As used in sections 3781.25 to 3781.32 of the Revised Code:

(A) "Protection service" means a notification center, but not an owner of an individual utility, that exists for the purpose of receiving notice from persons that prepare plans and specifications for or that engage in excavation work, that distributes this information to its members and participants, and that has registered by March 14, 1989, with the secretary of state and the public utilities commission of Ohio under former division (F) of section 153.64 of the Revised Code as it existed on that date.

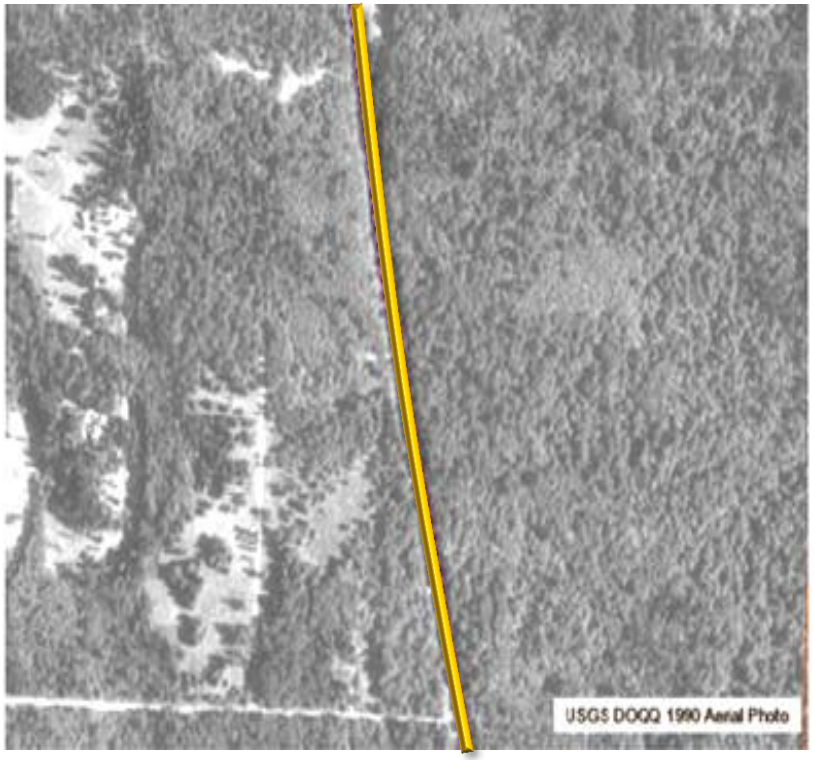
(B) "Underground utility facility" includes any item buried or placed below ground or submerg
with the storage or conveyance of water or sewage; electronic, telephon
electricity; crude oil; petroleum products; artificial or
liquefied natural gas; propane gas;
operational undergrou

Local Land Planning Authority

Reducing potential impact of development near transmission pipelines

Growth along a transmission pipeline in Washington State…

1990



2002

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PIPA-info.com

Increases Likelihood of Damage to the Pipeline

Impedes Access for Emergency Response & Safe Maintenance/Operation of the Pipeline

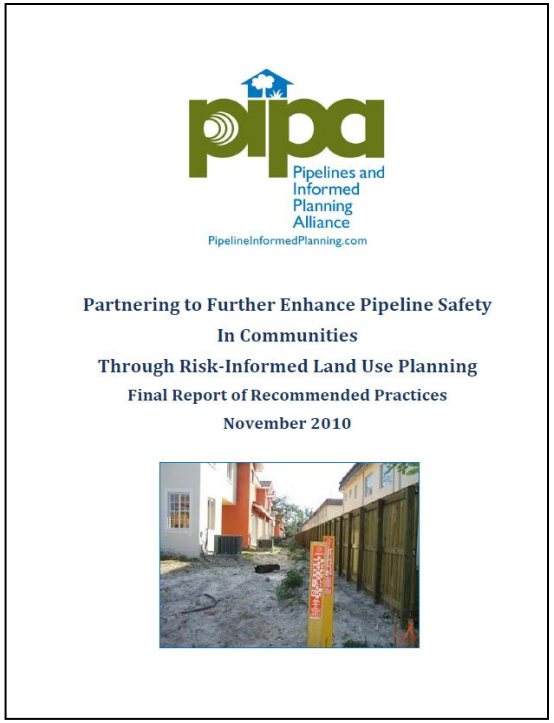
Increases Consequences

Choosing Better Options

About the PIPA Report

Created by a stakeholder group of ~130 participants representing a wide range of interests, organizations, and viewpoints on pipelines and community planning.

Scope: Existing Gas Transmission & Hazardous Liquid Pipelines
Stakeholders: Local Government, Property Developer/Owner, Pipeline Operator, Real Estate Commission
Scenarios: Baseline (implement in preparation for future) and New Development (Implement when use/development is proposed)
43 Recommended Practices



www.PIPA-Info.com

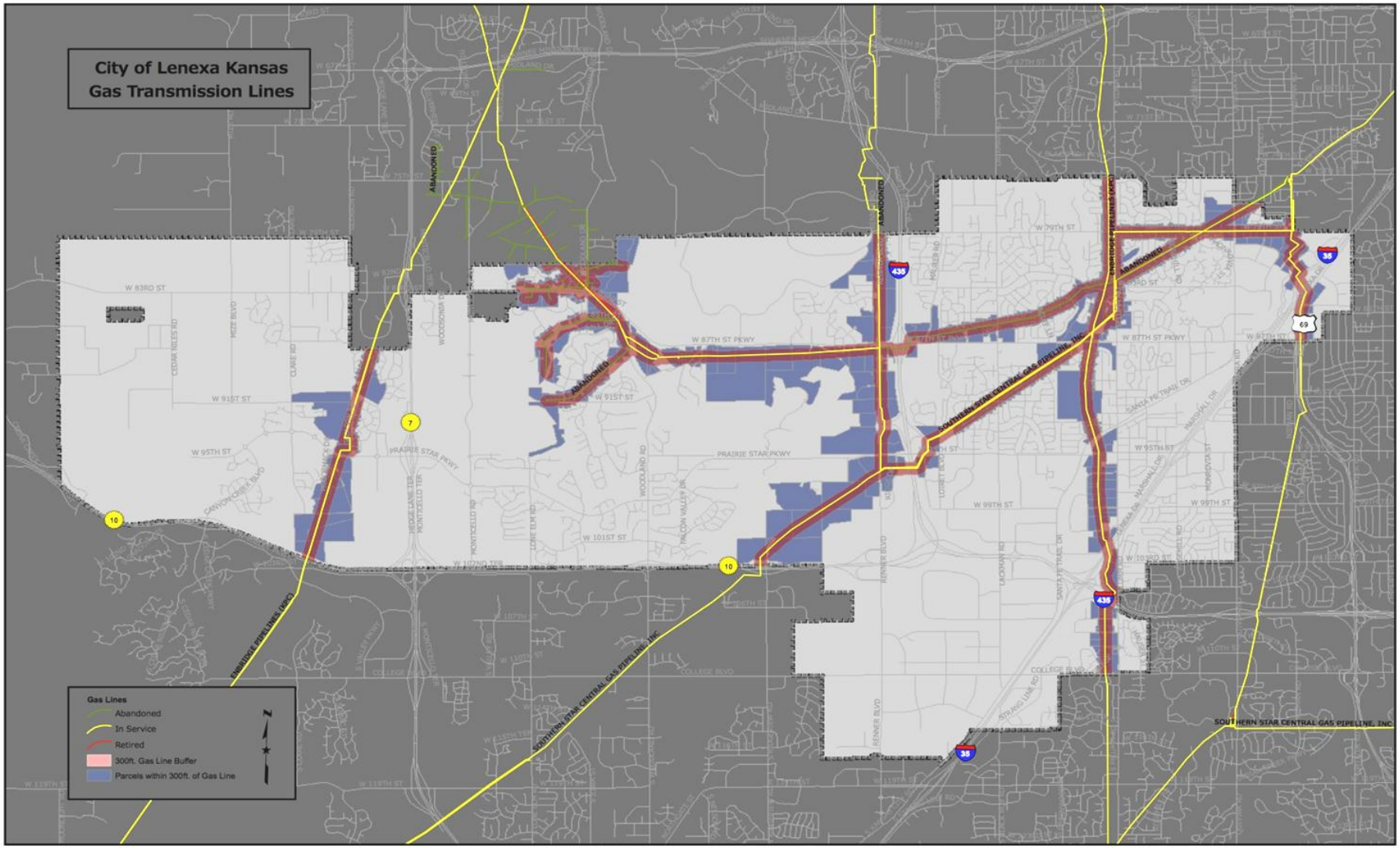
RP BL01 Obtain Transmission Pipeline Mapping Data

- Online map
- Pipeline type & commodity
- Operator name and contact
- Pipeline shape file

www.NPMS.phmsa.dot.gov

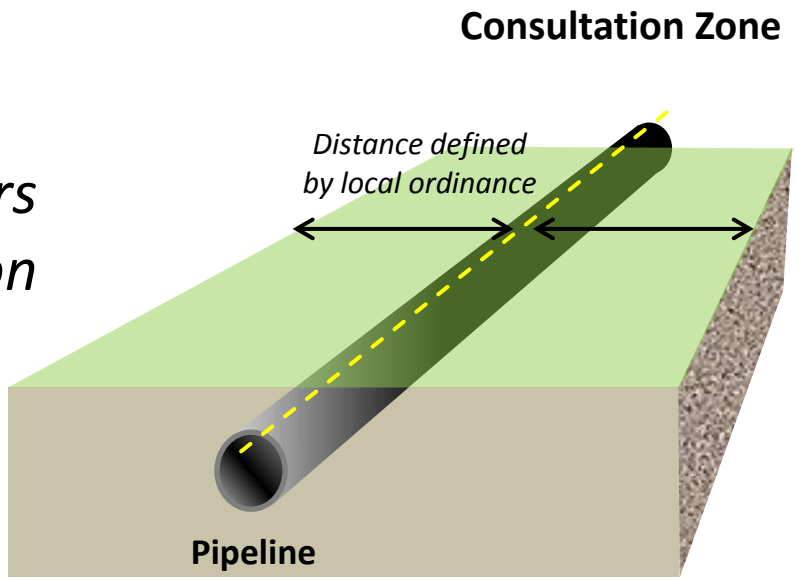
US DOT
NPMS
national pipeline mapping system

Incorporate Pipeline Maps on Internal GIS Maps



RP BL05 – Consultation Zone

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



Absent site-specific information:

- Natural Gas Pipelines = 660'-1,000'
- Hazardous Liquid Pipelines = 1,000'-1,500'

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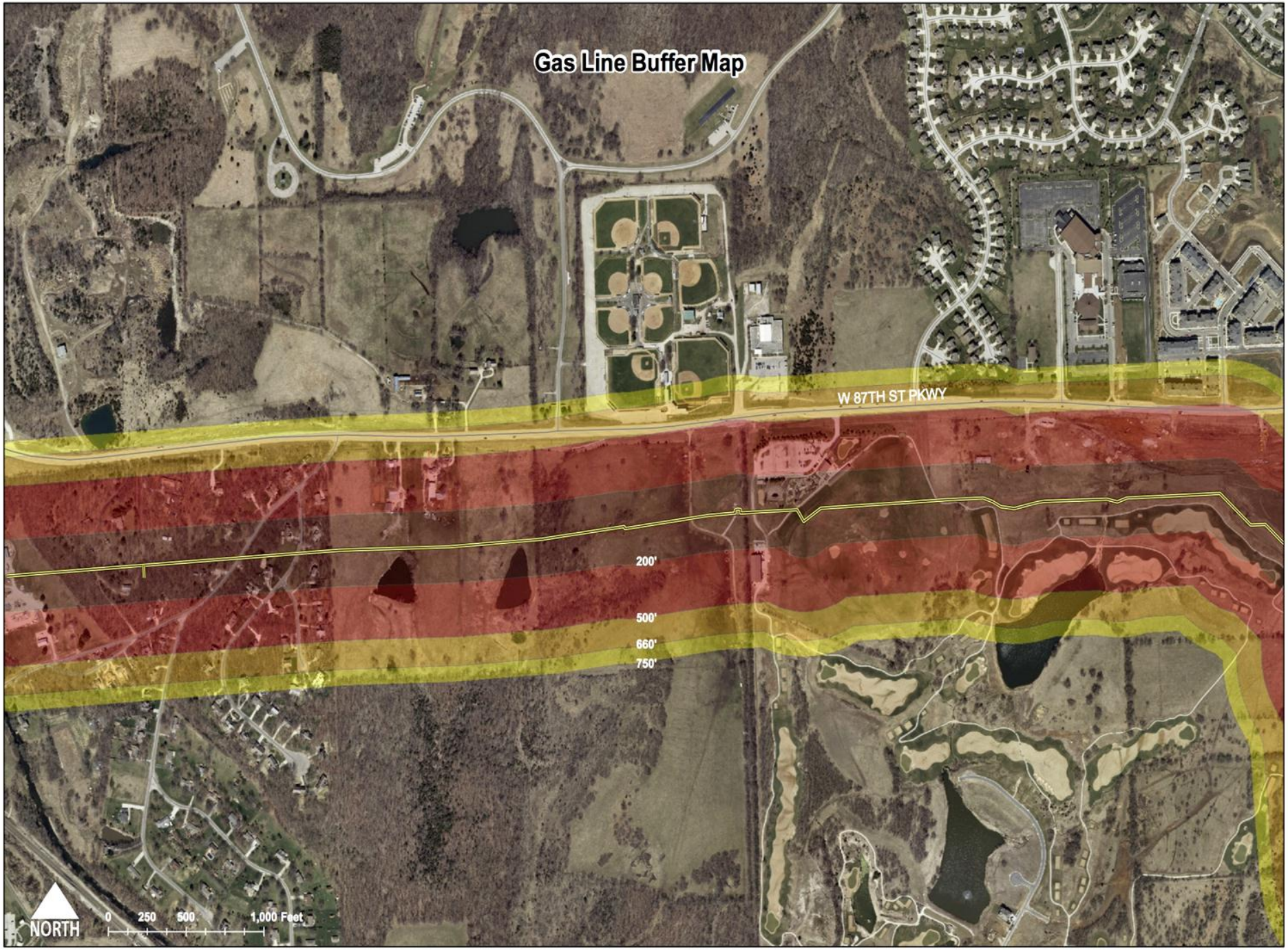
PIPA-info.com


Gas Line Buffer Map
W 87TH ST PKWY
200'
500'
660'
750'
NORTH
0
250
500
1,000 Feet

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

...cul-de-sac streets should not be designed crossing a transmission pipeline as the only route of ingress or egress…

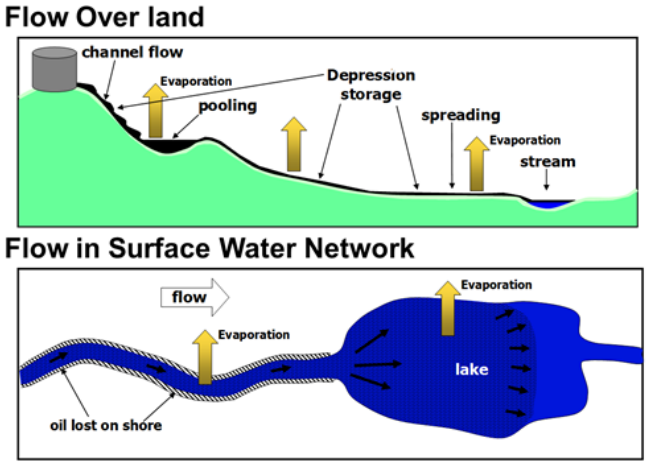
RP ND11 – Placing New Parking Lots

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

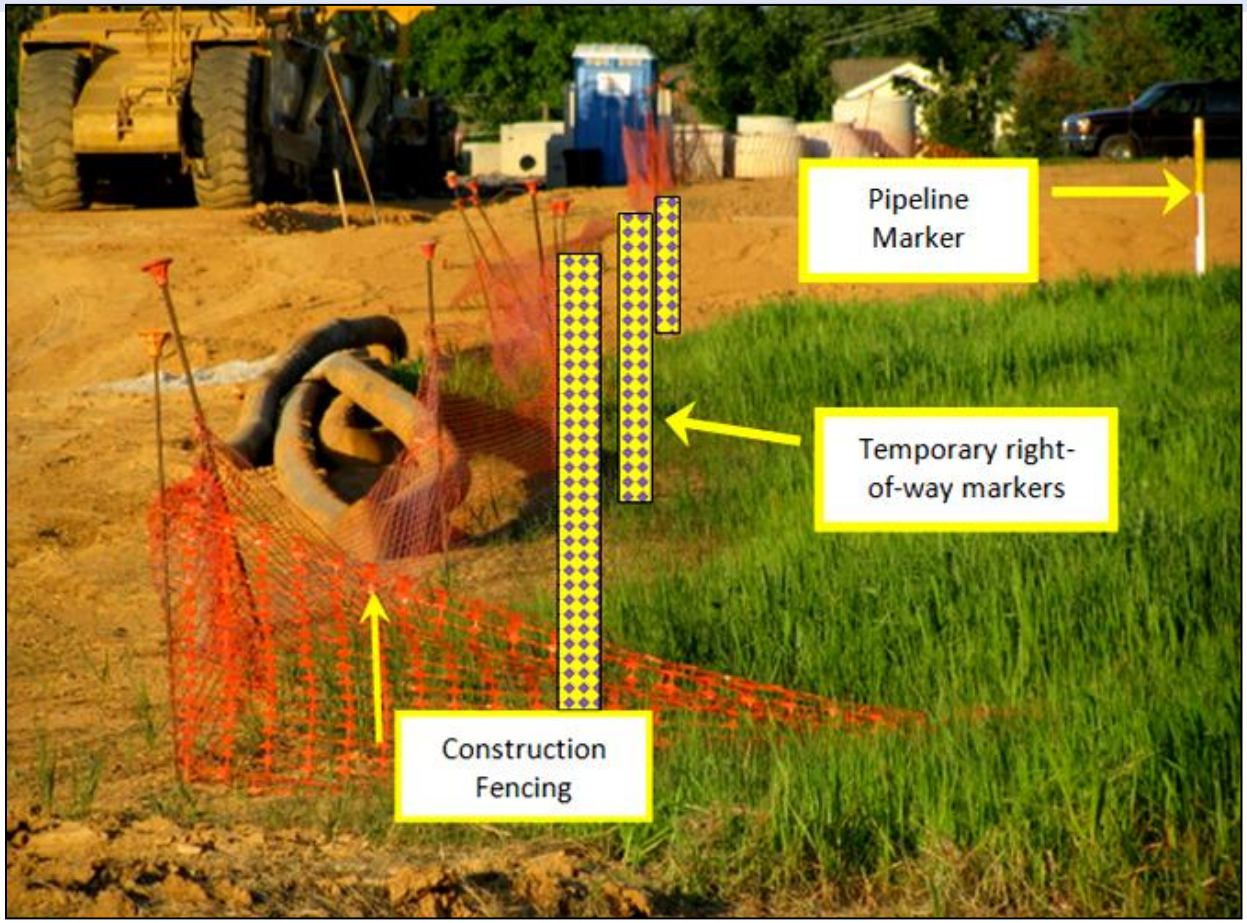
Review Design for Safe Integration with Transmission Pipeline ROW

Consider:

- Maximum separation between built environment and pipeline
- Alternate escape routes
- More stringent fire protection and fire endurance
- Future interference with pipeline operations and maintenance & emergency response
- Access for emergency response
- Fire, explosion, or toxic release impact models
- Prevention of future excavation damage
- Potential damage to pipeline due to impacts of development (i.e. runoff, overbearing)
- Avoiding difficult to evacuate buildings
- Effects of noise/odor from pipeline operations



Damage Prevention "Bucket"
RP ND24 Temporary Markers for Construction



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

Emergency Preparedness "Bucket"
RP ND 23 Consider Site Emergency Response Plans in Land Use Development

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

…review of existing ROW can illustrate the benefit of land planning practices & identify locations for enhance emergency preparedness…

Other State & Local Government Roles in Public Safety near Transmission Pipelines

~ Emergency Response
~ Excavation Damage Prevention

Emergency Response – Where We Are

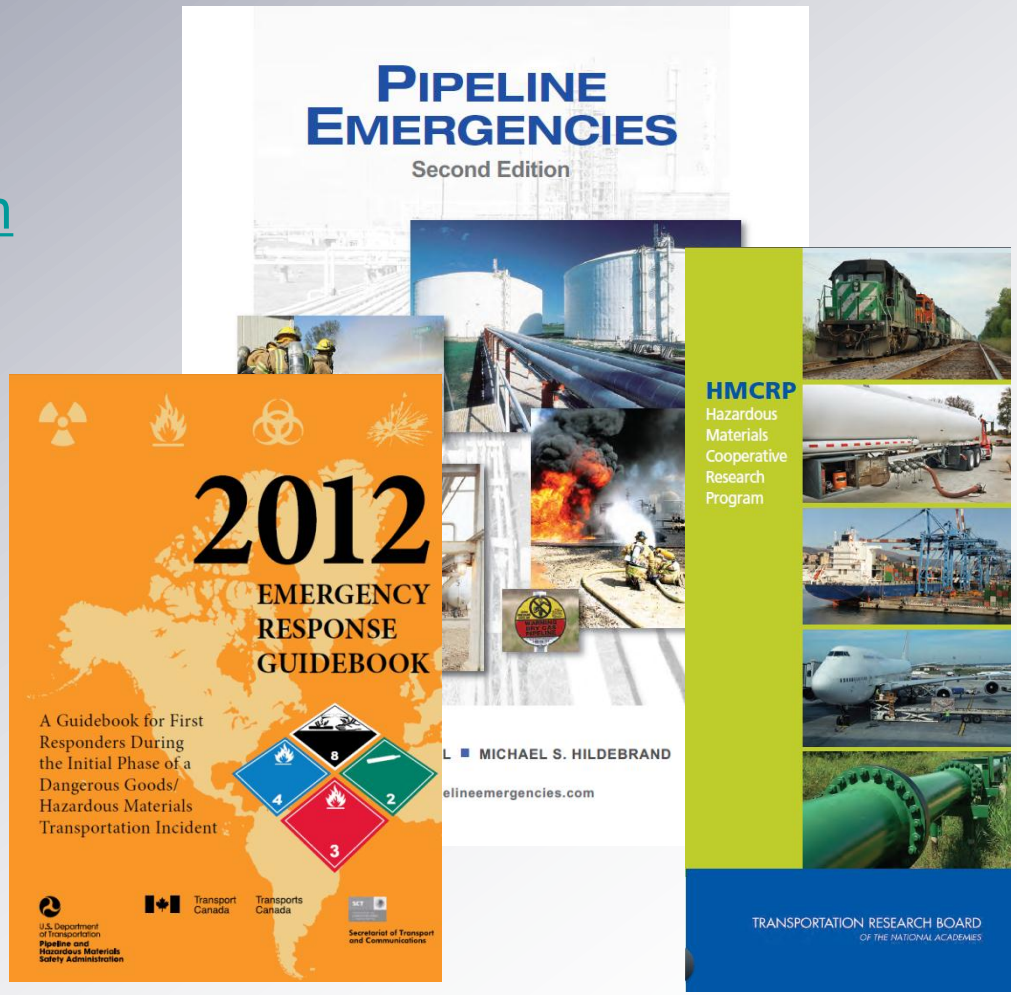
- Communities and their emergency responders are not always aware of pipeline safety concerns. Some reasons include:
  - Catastrophic pipeline incidents are low-frequency, high-consequence events
  - Pipelines are out of sight, out of mind
- PHMSA requires pipeline operators to communicate directly with the emergency responders regarding safe and effective pipeline emergency response
  - This communication is essential and part of a larger approach to preparing emergency responders for pipeline emergencies

Where We're Going

- Goal: Reduce the consequences of pipeline failures by strengthening the capabilities of local emergency responders through institutionalizing pipeline awareness within the emergency response community.
- PHMSA has undertaken a variety of initiatives and activities to assist with accomplishing the goal:
  - Educating ourselves and the ER community by hosting/participating in pipeline ER forums
  - Building partnerships and coordinating with pipeline ER stakeholders
  - Actively communicating with the ER community via presentations at conferences and articles in trade publications
  - Creating/enhancing pipeline ER resources

PHMSA Pipeline Emergency Response Resources

- **Pipeline Emergencies** training curriculum – www.pipelineemergencies.com
- **Emergency Response Guidebook (ERG)** – updated and expanded pipeline pages
- **Hazardous Materials Cooperative Research Program** – HM15



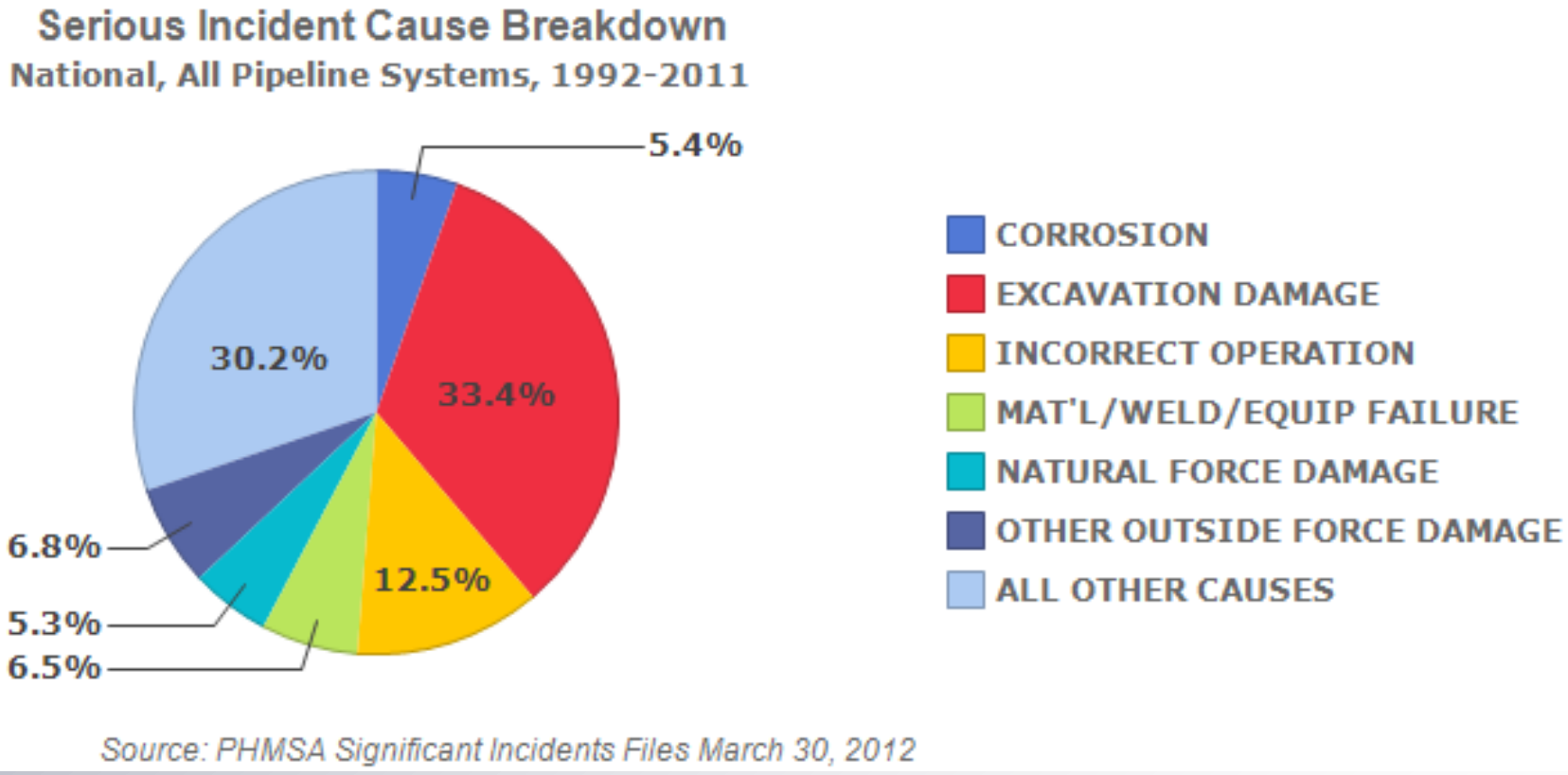
More Information

- Visit our website at http://opsweb.phmsa.dot.gov/pipelineforum/pipeline_emergency_response_forum/index.html
- Contact Sam Hall
  Phone: 804-556-4678
  Email: sam.hall@dot.gov

Focus on Damage Prevention: What we know

- Excavation damage is a serious threat to public safety and pipeline integrity
- Data indicates overall decrease in incidents caused by excavation damage, but still a serious threat
- Excavation damage is largely preventable
- All states have one call laws, one call centers, but state laws and programs vary considerably
- More work to do, more support needed

20-Year Serious Incidents*



* Serious Incidents: Pipeline Release and fatality or injury

Damage Prevention: What we're doing

- Providing Tools to build knowledge across the country
- State/local outreach: meetings, letters of support, teleconferences, **support of 811**, sharing of information
- **Regulatory actions – enforcement of one call laws**
- **Exemptions – Congressional directives**
- Grants to states
- Partnerships: States, Common Ground Alliance, Public, Trade Associations, Safety Organizations
- Seeking to expand outreach/partnerships – local government, agriculture, educators

Questions/Discussion

For more information:

Annmarie Robertson
317-253-1622
annmarie.robertson@dot.gov

Sam Hall
804-556-4678
sam.hall@dot.gov

Resources (programs, data on pipeline facilities, incidents, enforcement, etc.)

http://www.phmsa.dot.gov/pipeline

http://primis.phmsa.dot.gov/comm/

811®
Know what's below.
Call before you dig.

Resources for State & Local Governments

VDEM & PHMSA – Hazard Mitigation Plan

U.S. Department of Transportation | Pipeline & Hazardous Materials Safety Administration

Pipeline Safety Stakeholder Communications
Pipeline Safety Connects Us All

Home | General Public | Emergency Officials | Local Officials | Excavators | Property Developer/ Owner | Pipeline Safety Advocates | State Regulators | Federal Agencies | Industry | Contact Us

- PIPA General
- PIPA Audiences
- PIPA Downloads

Site Pages
- About Pipelines
- Regulatory Oversight
- Safety Programs
- Public Outreach

State Pipeline Profiles:
Choose One...

Print

Hazard Mitigation Planning for Pipelines

What is a Hazard Mitigation Plan?

State and local governments create hazard mitigation plans (HMP) to identify ways they can protect the health, safety and economic interests of their communities by reducing the impacts of both natural and man-made hazards. Hazard mitigation is any action taken to permanently eliminate or reduce the long-term risk to human life and property from hazards. It is an essential element of emergency management, along with preparedness, response and recovery.

PHMSA and Virginia Department of Emergency Management Pilot Project

In 2012, PHMSA and the Virginia Department of Emergency Management (VDEM) undertook a pilot project to determine an approach to encourage state and local governments to incorporate gas and hazardous liquid pipelines into their emergency management hazard mitigation plans. The focus of this effort is toward the inclusion of the PIPA Recommended Practices as mitigative solutions to identified pipeline hazards. The pilot initiative is supported by the ad hoc PIPA Communication Team and several pipeline operator representatives.

U.S. Department of Transportation | Pipeline & Hazardous Materials Safety Administration

PHMSA in partnership with the Virginia Department of Emergency Management is developing guide materials for incorporation of pipeline hazards into state and local mitigation plans.

Virginia Department of Emergency Management

Pipelines are Manmade Hazards

Gas and hazardous liquid pipelines are constructed by and for pipeline companies for the transportation of gas and hazardous liquids. By the nature of the potentially hazardous products they carry, pipelines should be included in the lists of hazards that communities consider when developing hazard mitigation plans. Knowledge of pipeline hazards can enable informed decisions to be made about how to manage the risks and develop mitigation strategies.

Pipeline manifold impacted by flooding

Natural Hazards Present Risk to Pipelines

While pipelines are often thought of as presenting risks to communities, natural hazards can impact the integrity of pipelines. Although natural hazards are cited as the cause in fewer than ten percent (10%) of pipeline incidents, the failure of a large-diameter, high-pressure natural gas or hazardous liquid transmission pipeline during an earthquake or hurricane event can significantly complicate a communities' ability to respond and recover from the event.

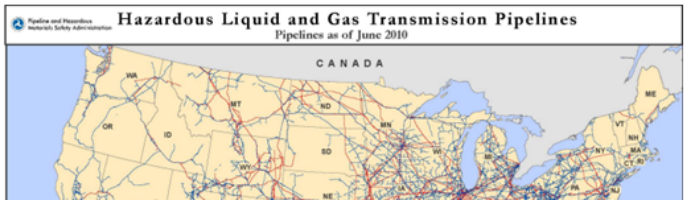
Pipelines are Critical Infrastructure

Our gas and hazardous liquid transmission pipeline systems are a vital part of the U.S. transportation and energy supply infrastructure. Airports, power generating stations, and major industries, as well as commercial businesses and residents depend on the energy and raw manufacturing products delivered via pipelines. Pipeline disruptions impact our economy, public health, and even national security.

Pipeline Hazard Mitigation Strategies

PHMSA has identified four mitigation strategies wherein state and local governments have the authority to reduce the risk of pipeline hazards:

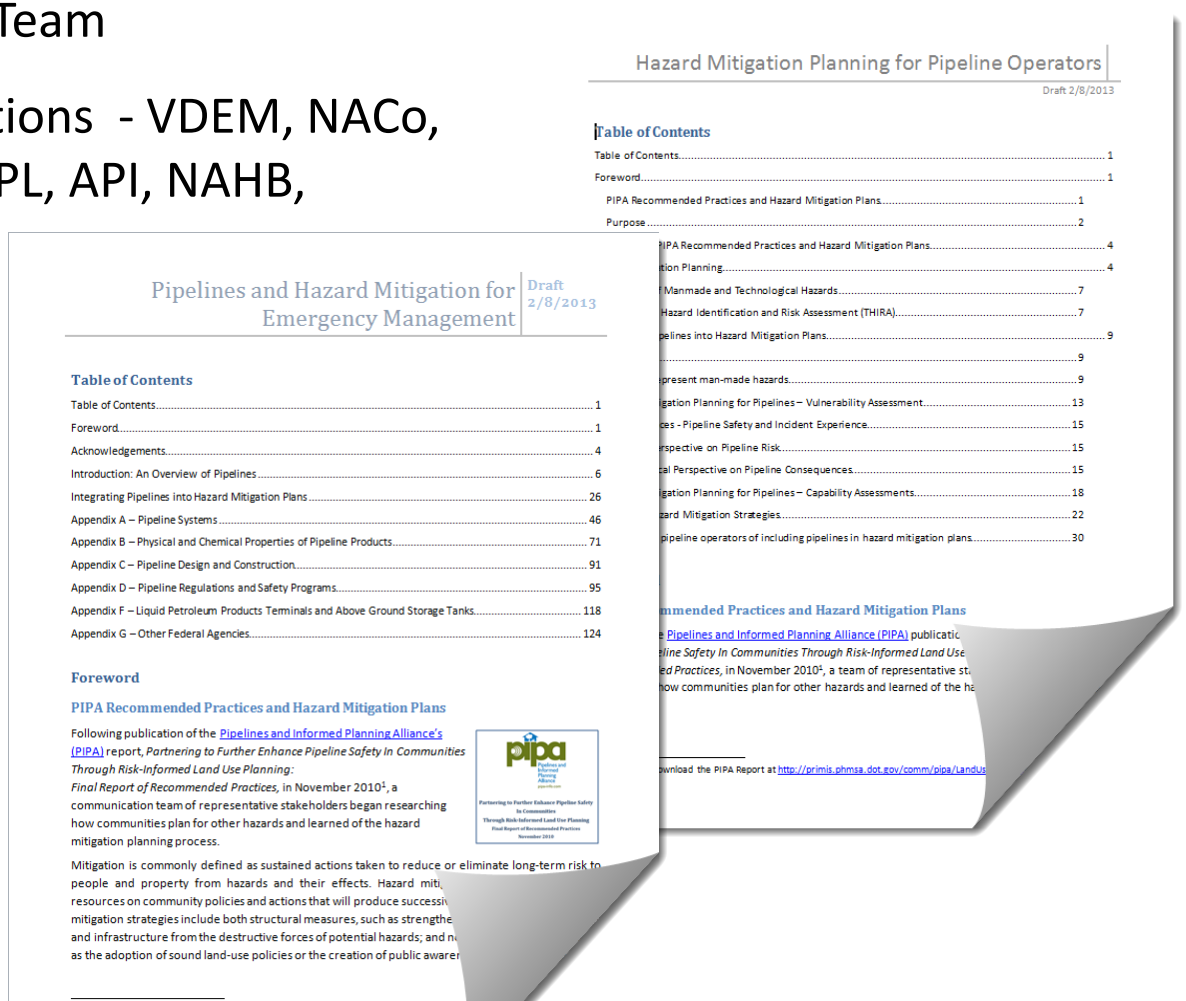
- Pipeline awareness - education and outreach,
- Excavation damage prevention,
- Land use and development planning near transmission pipelines, and
- Emergency response planning for pipeline emergencies.



Hazard Mitigation for Pipelines Primers

Primers for Hazard Mitigation Managers and Pipeline Operators - Currently in draft. Looking to release final version by June 17, 2013. Being reviewed by:

- PIPA Communication Team
- Stakeholder Organizations - VDEM, NACo, NLC, AGA, INGAA, AOPL, API, NAHB, NAPSR



Hazard Mitigation Planning for Pipeline Operators

Draft 2/8/2013

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Pipelines and Hazard Mitigation for Emergency Management

Draft 2/8/2013

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Foreword

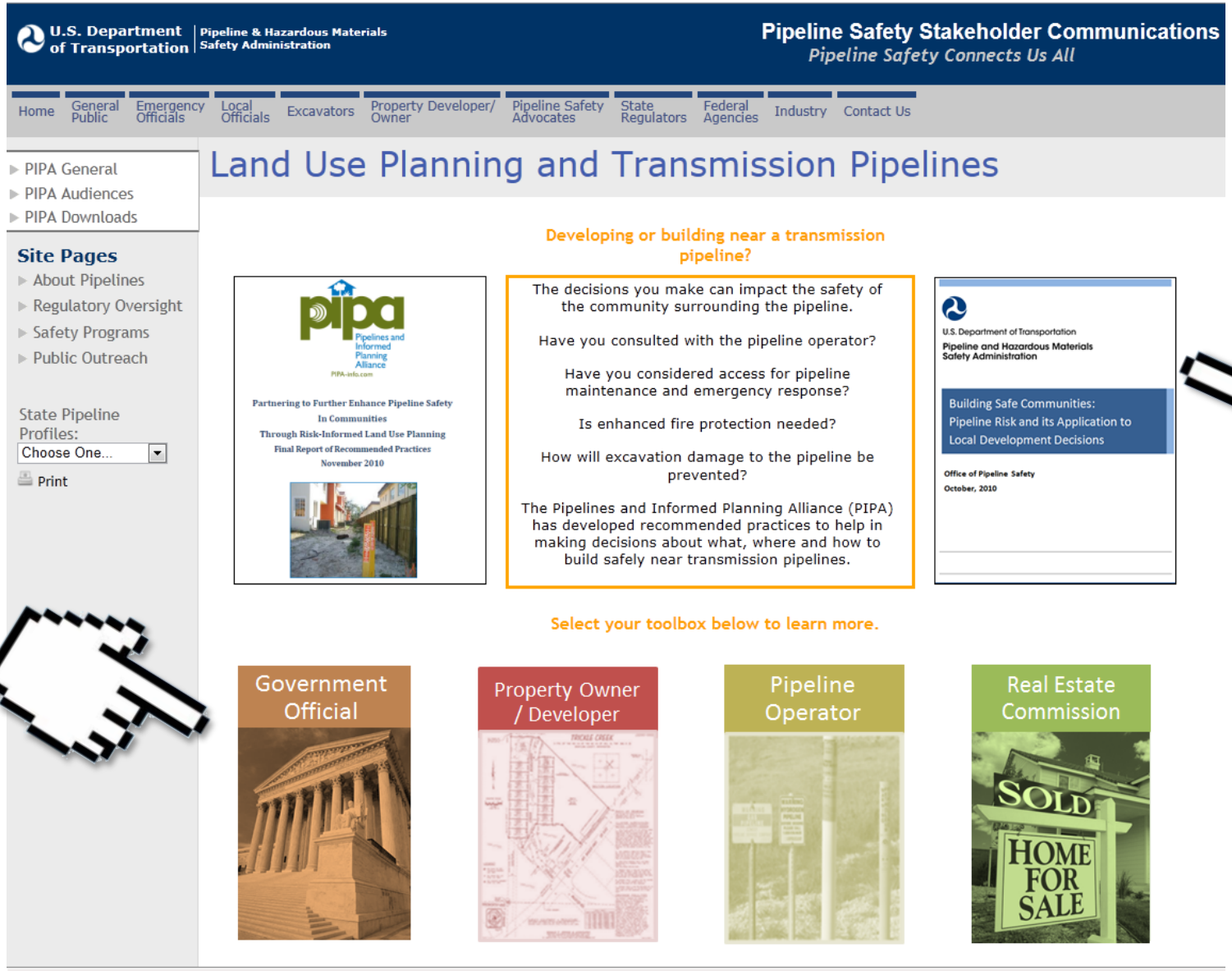
PIPA Recommended Practices and Hazard Mitigation Plans

Following publication of the Pipelines and Informed Planning Alliance's (PIPA) report, *Partnering to Further Enhance Pipeline Safety In Communities Through Risk-Informed Land Use Planning: Final Report of Recommended Practices*, in November 2010[1], a communication team of representative stakeholders began researching how communities plan for other hazards and learned of the hazard mitigation planning process.

Mitigation is commonly defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects. Hazard miti... resources on community policies and actions that will produce successi... mitigation strategies include both structural measures, such as strengthe... and infrastructure from the destructive forces of potential hazards; and n... as the adoption of sound land-use policies or the creation of public awarer...

PIPA Online Resources

PIPA-info.com



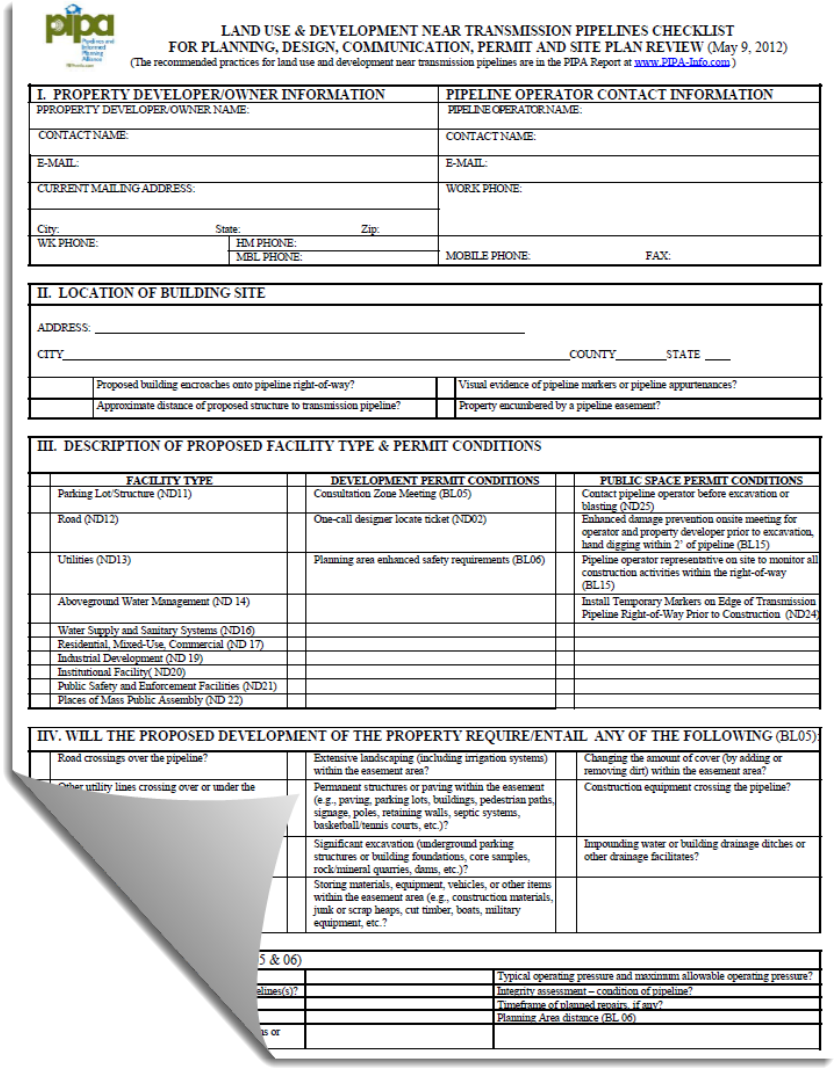
Information about National Pipeline Risk

Land Use & Development near Transmission Pipelines Checklist

Similar to an Environmental Assessment Checklist

Can Be Used to:

- Facilitate Communication
- Inform Land Acquisition
- Guide Pre-Planning &Design
- Permit & Site Plan Review



LAND USE & DEVELOPMENT NEAR TRANSMISSION PIPELINES CHECKLIST
FOR PLANNING, DESIGN, COMMUNICATION, PERMIT AND SITE PLAN REVIEW (May 9, 2012)
(The recommended practices for land use and development near transmission pipelines are in the PIPA Report at www.PIPA-Info.com)

I. PROPERTY DEVELOPER/OWNER INFORMATION	PIPELINE OPERATOR CONTACT INFORMATION
PPROPERTY DEVELOPER/OWNER NAME:	PIPELINE OPERATOR NAME:
CONTACT NAME:	CONTACT NAME:
E-MAIL:	E-MAIL:
CURRENT MAILING ADDRESS:	WORK PHONE:
City: State: Zip:	
WK PHONE: HM PHONE: MBL PHONE:	MOBILE PHONE: FAX:

II. LOCATION OF BUILDING SITE

ADDRESS: _____

CITY_____COUNTY_____STATE ____

Proposed building encroaches onto pipeline right-of-way?	Visual evidence of pipeline markers or pipeline appurtenances?
Approximate distance of proposed structure to transmission pipeline?	Property encumbered by a pipeline easement?

III. DESCRIPTION OF PROPOSED FACILITY TYPE & PERMIT CONDITIONS

FACILITY TYPE	DEVELOPMENT PERMIT CONDITIONS	PUBLIC SPACE PERMIT CONDITIONS
Parking Lot/Structure (ND11)	Consultation Zone Meeting (BL05)	Contact pipeline operator before excavation or blasting (ND25)
Road (ND12)	One-call designer locate ticket (ND02)	Enhanced damage prevention onsite meeting for operator and property developer prior to excavation, hand digging within 2' of pipeline (BL15)
Utilities (ND13)	Planning area enhanced safety requirements (BL06)	Pipeline operator representative on site to monitor all construction activities within the right-of-way (BL15)
Aboveground Water Management (ND 14)		Install Temporary Markers on Edge of Transmission Pipeline Right-of-Way Prior to Construction (ND24)
Water Supply and Sanitary Systems (ND16)		
Residential, Mixed-Use, Commercial (ND 17)		
Industrial Development (ND 19)		
Institutional Facility(ND20)		
Public Safety and Enforcement Facilities (ND21)		
Places of Mass Public Assembly (ND 22)		

IIV. WILL THE PROPOSED DEVELOPMENT OF THE PROPERTY REQUIRE/ENTAIL ANY OF THE FOLLOWING (BL05)

Road crossings over the pipeline?	Extensive landscaping (including irrigation systems) within the easement area?	Changing the amount of cover (by adding or removing dirt) within the easement area?
Other utility lines crossing over or under the	Permanent structures or paving within the easement (e.g., paving, parking lots, buildings, pedestrian paths, signage, poles, retaining walls, septic systems, basketball/tennis courts, etc.)?	Construction equipment crossing the pipeline?
	Significant excavation (underground parking structures or building foundations, core samples, rock/mineral quarries, dams, etc.)?	Impounding water or building drainage ditches or other drainage facilitates?
	Storing materials, equipment, vehicles, or other items within the easement area (e.g., construction materials, junk or scrap heaps, cut timber, boats, military equipment, etc.?	

5 & 06)

elines(s)?		Typical operating pressure and maximum allowable operating pressure?
		Integrity assessment – condition of pipeline?
		Timeframe of planned repair, if any?
s or		Planning Area distance (BL 06)

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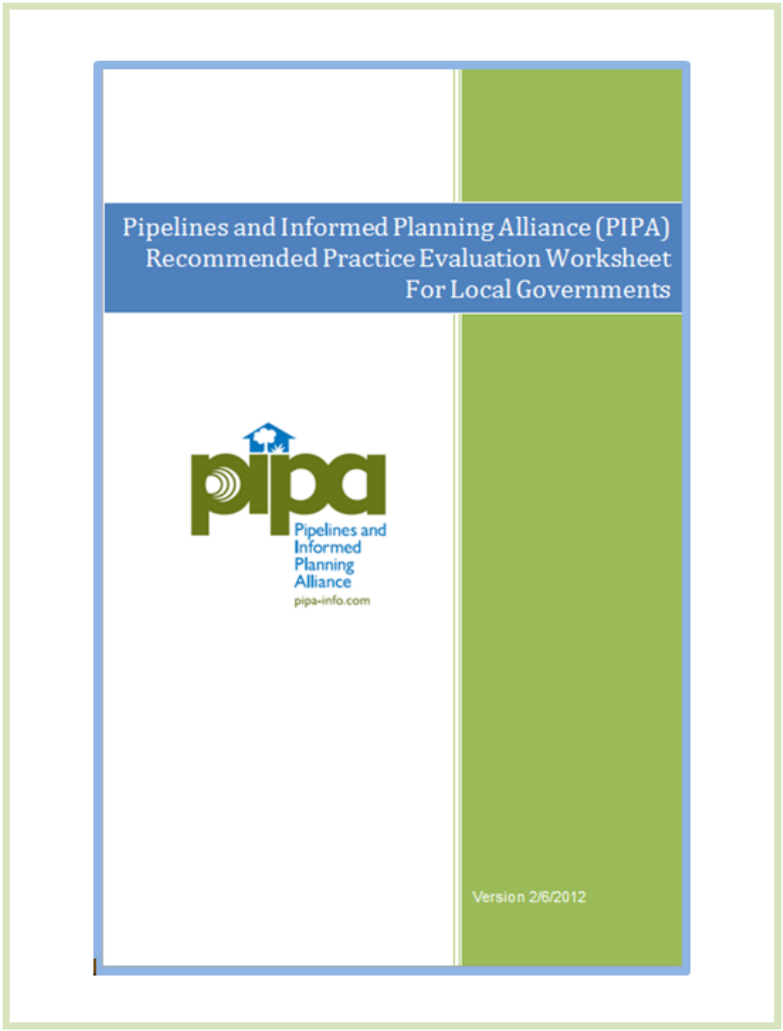
PIPA RP Evaluation Worksheet for Local Governments

Perform a gap analyses comparing your community's current practices to the PIPA recommended practices.



Examples of Land Use Ordinances

- PIPA Model Ordinance – Appendix B in the PIPA Report
- Municipal Research and Services Center of Washington

APPENDIX B

PIPA Report, November 2010

Bill No. _____

ORDINANCE NO. _____

AN ORDINANCE PROVIDING FOR MINIMUM REQUIREMENTS PERTAINING TO LAND USE,

CONSTRUCTION, AND PUBLIC SAFETY NEAR GAS TRANMISSION AND/OR HAZARDOUS

LIQUID TR

WHEREAS

hazardous liquids

WHEREAS

through portions

WHEREAS

and/or the enviro

WHEREAS

features to minim

WHEREAS

M·R·S·C Municipal Research and Services Center of Washington

Working Together for Excellence in Local Government

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Have a question?

ask MRSC

Public Safety Tools & Resources

- MRSC Public Safety Inquiries
- Links to Other Public Safety Sites
- New MRSC Library Acquisitions
- Selected MRSC Library Holdings - Emergency Management
- Law Enforcement Agencies Records Retention Schedule & Management Manual
- Public Safety Standards - RCW 10.101.030

MRSC Tools and Resources

- Library Loan Request
- MRSC Index
- MRSC Publications List
- Research Request
- Sample Local Government Documents

Subjects › Public Safety › Pipeline Safety › Planning Near Pipelines: Sample Ordinances and Information Resources

Updated 12/2011

Planning Near Pipelines: Sample Land Use Ordinances

This page, part of MRSC's Planning Near Pipelines section, contains sample land use ordinances which contain some of the best practices for planning near pipelines.

- MRSC Consultation Zone Model Ordinance, 06/2006

Washington State

- Benton County Ordinance No. 474 - Amends Ch. 9.08, Platting and Subdivisions; includes requirement for consultation with owner/operator of a pipeline for properties within 150 feet of a hazardous product transmission pipeline, passed 07/12/2010 - See, in particular, sections 10(h) and 12
- King County Code Sec. 21A.12.140 - Setbacks from regional utility corridors (provides for 100-foot setback for any structure designed for human occupancy, and five feet for almost all other structures
- Kirkland Ordinance No. 4371 - Adds Ch. 118, hazardous liquid pipelines; zoning code amendments regulating activities near hazardous liquid pipelines, passed 08/07/2012
- La Center Ordinance No. 2009-013 - Adds Ch. 18.157, Sensitive Utility Corridor Overlay District, passed 11/24/2009
- Redmond Municipal Code Ch. 21.26 - Hazardous Liquid Pipelines
- Roy Ordinance No. 863 - Adds Ch.11-39, Pipeline Consultation Zone; for designated activities within 660 feet of a hazardous liquid or natural gas transmission line, passed 12/12/2011
- Skagit County Ordinance No. O201110010 - Adds Sec. 14.16.835, Pipeline Safety; requires consultation with pipeline operators for development within pipeline consultation areas, passed 12/05/2011
- Whatcom County Code Ch. 20.81 - Pipeline Safety

Out of State

- Austin, TX
  - Austin Municipal Code Sec. 25-2-516 - Land Use Development - Development Near a Hazardous Pipeline
  - Austin Municipal Code Sec. 25-4-134 - Subdivision - Platting Requirements - Hazardous Pipelines
- Brookings County, SD County Code Article 24.00 - Transmission Pipeline Risk Reduction Overlay District
- Champaign County, IL Ordinance No. 841 - Amendments to the County Zoning Ordinance re: Pipeline Impact Radius, passed 11/2008
- O'Fallon, MO
  - O'Fallon Municipal Code - Title IV - Land and Use - Zoning Code. Article VI. Supplementary District Regulations, Sec. 400.250 - Pipeline Setbacks
  - Area Plan Application - Planned Developments - Requires identification of pipeline easements, see page 5

See also the MRSC related page Washington Local Government Pipeline Information for other pipeline

http://www.mrsc.org/artdocmisc/landusegas.pdf#page=49

http://www.mrsc.org/subjects/pubsafe/transpipeords.aspx

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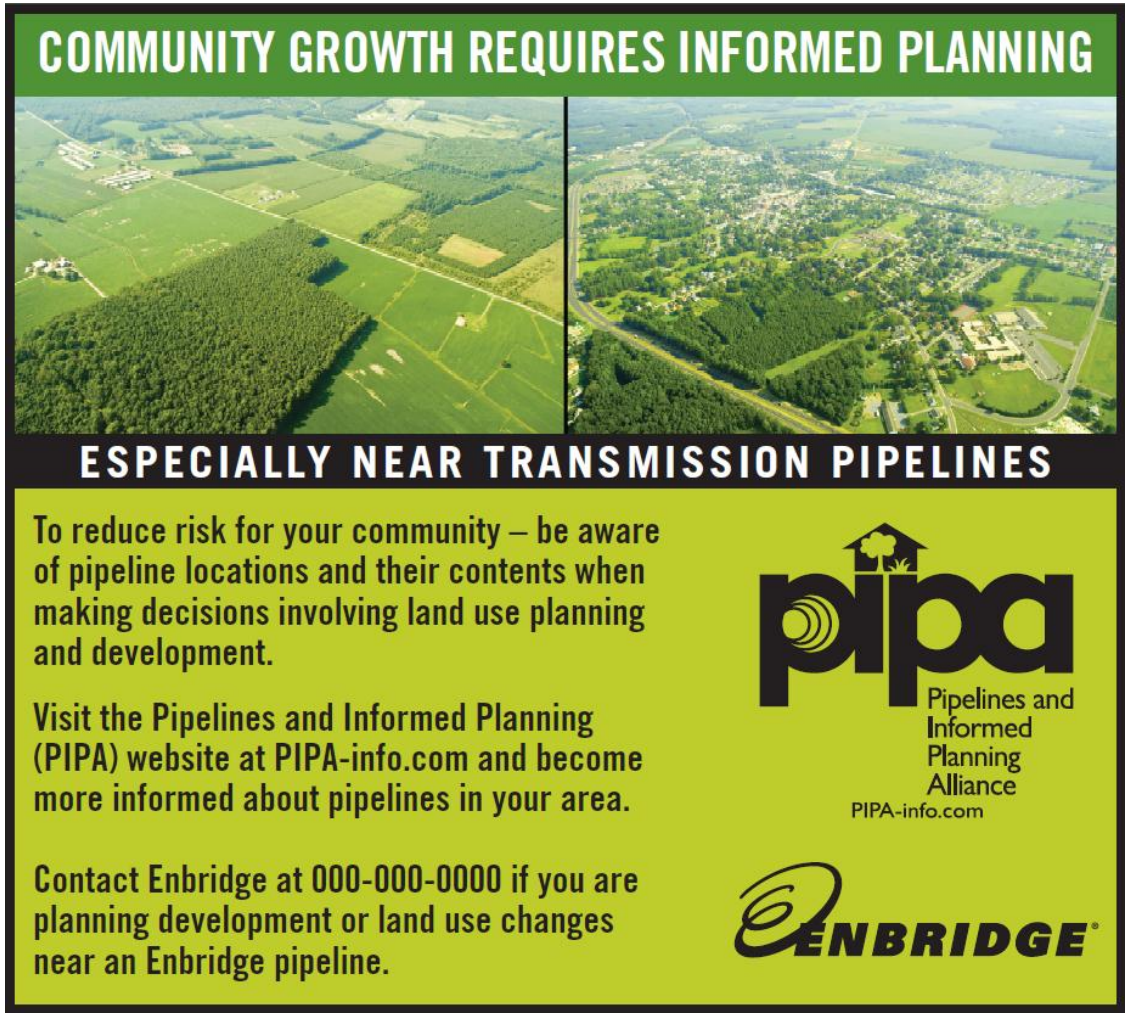
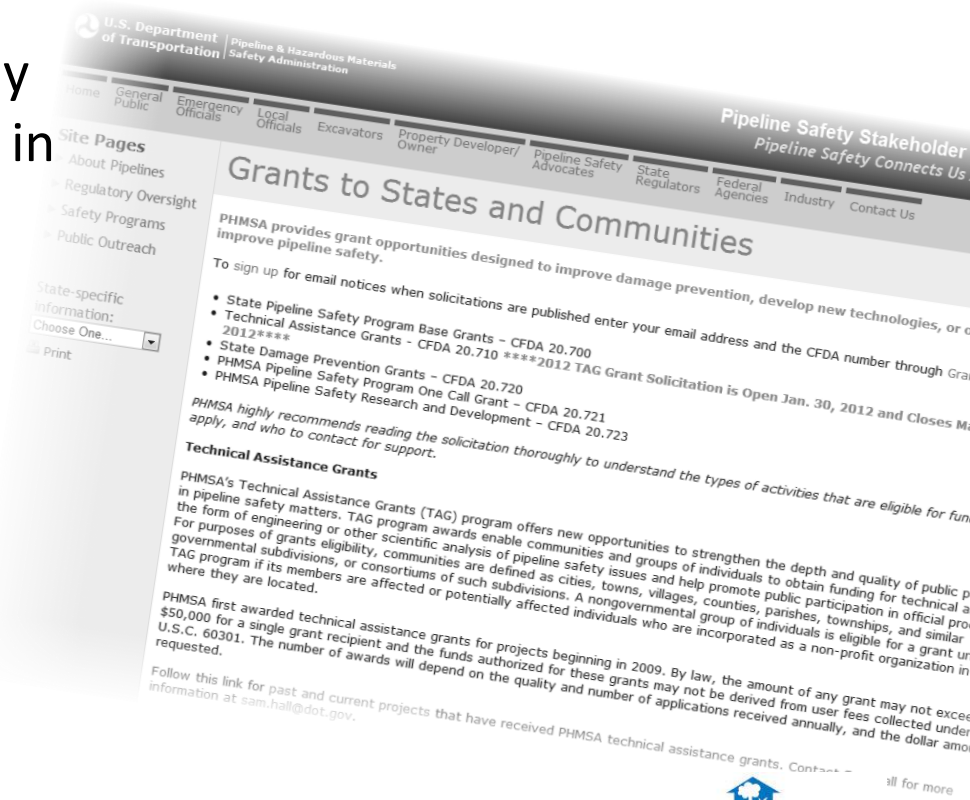
PIPA Promotional Material



US DOT PHMSA Technical Assistance Grants

Purpose: *to make grants to local communities and organizations for technical assistance related to pipeline safety issues* (includes implementing PIPA RPs & enhancing hazard mitigation plans to incorporate pipelines)

- Annual grants up to $50K typically posted in Jan – Feb and awarded in September
- Sign up for alerts when the solicitation is posted on http://www.grants.gov
- CFDA number 20.710
- Funding number DTPH56-12-SN-000001



GRANTS.GOV℠

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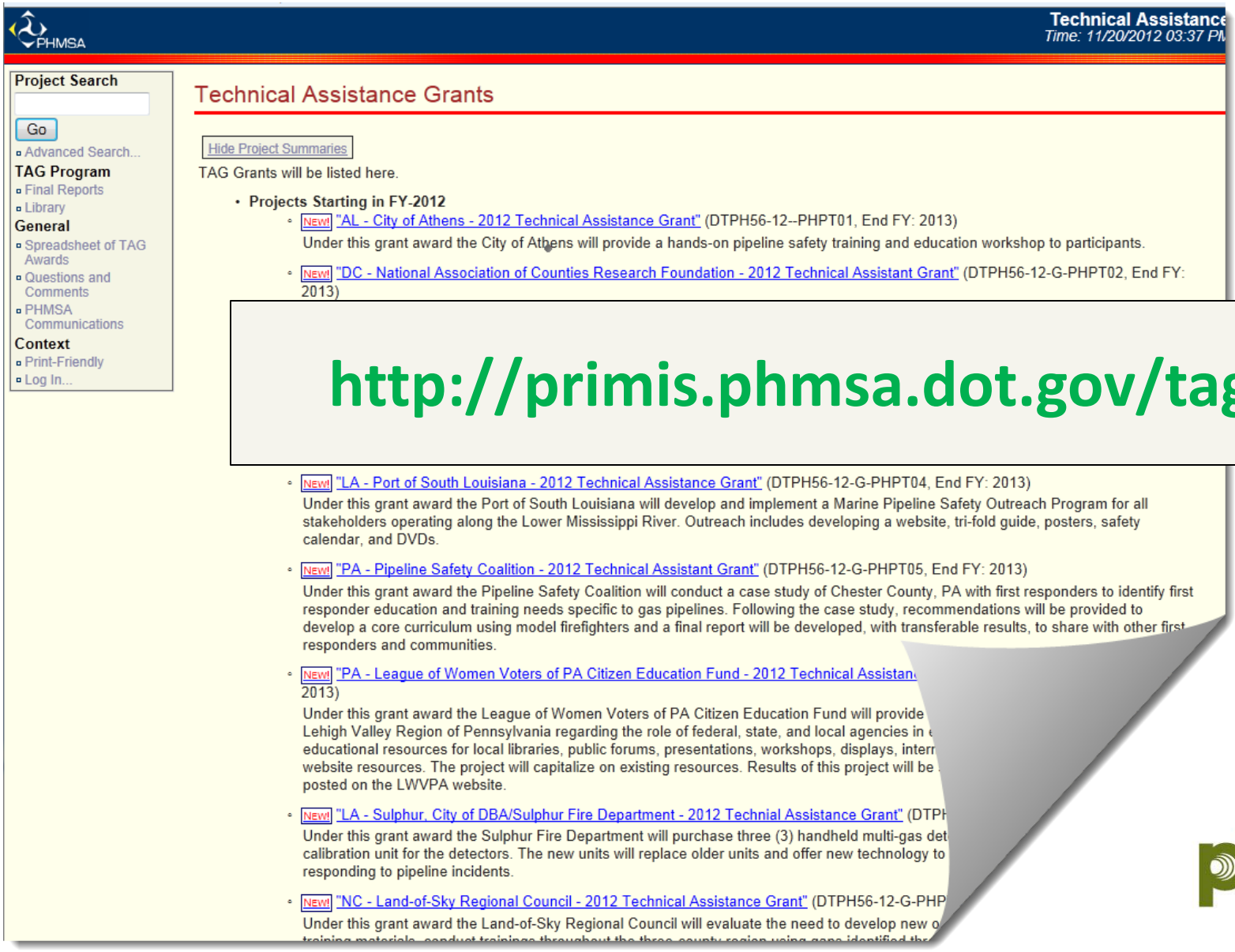
View Previously Awarded TAG Reports



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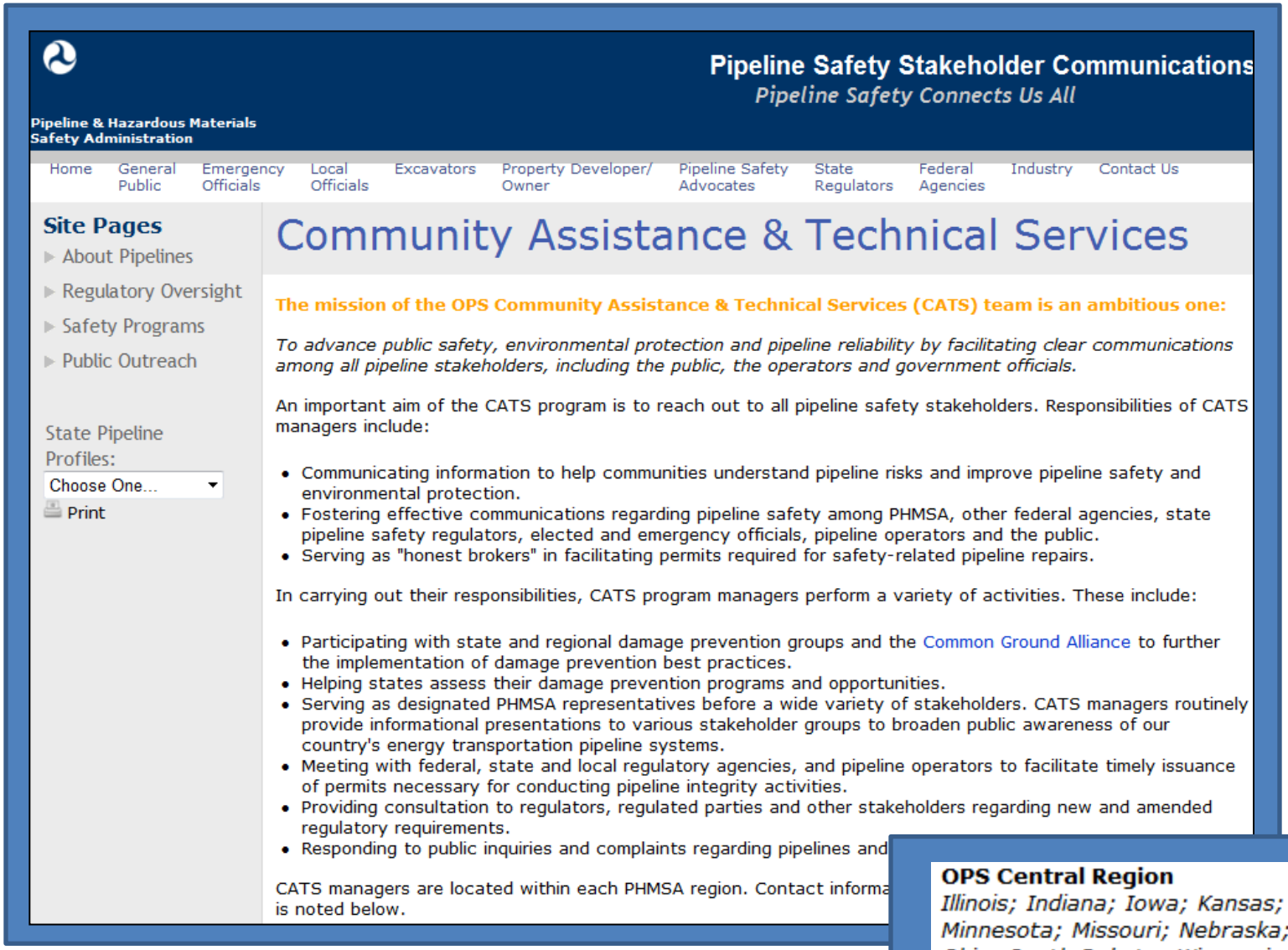
Pipeline Safety Stakeholder Communications
Pipeline Safety Connects Us All
Pipeline & Hazardous Materials Safety Administration
Home
General Public
Emergency Officials
Local Officials
Excavators
Property Developer/ Owner
Pipeline Safety Advocates
State Regulators
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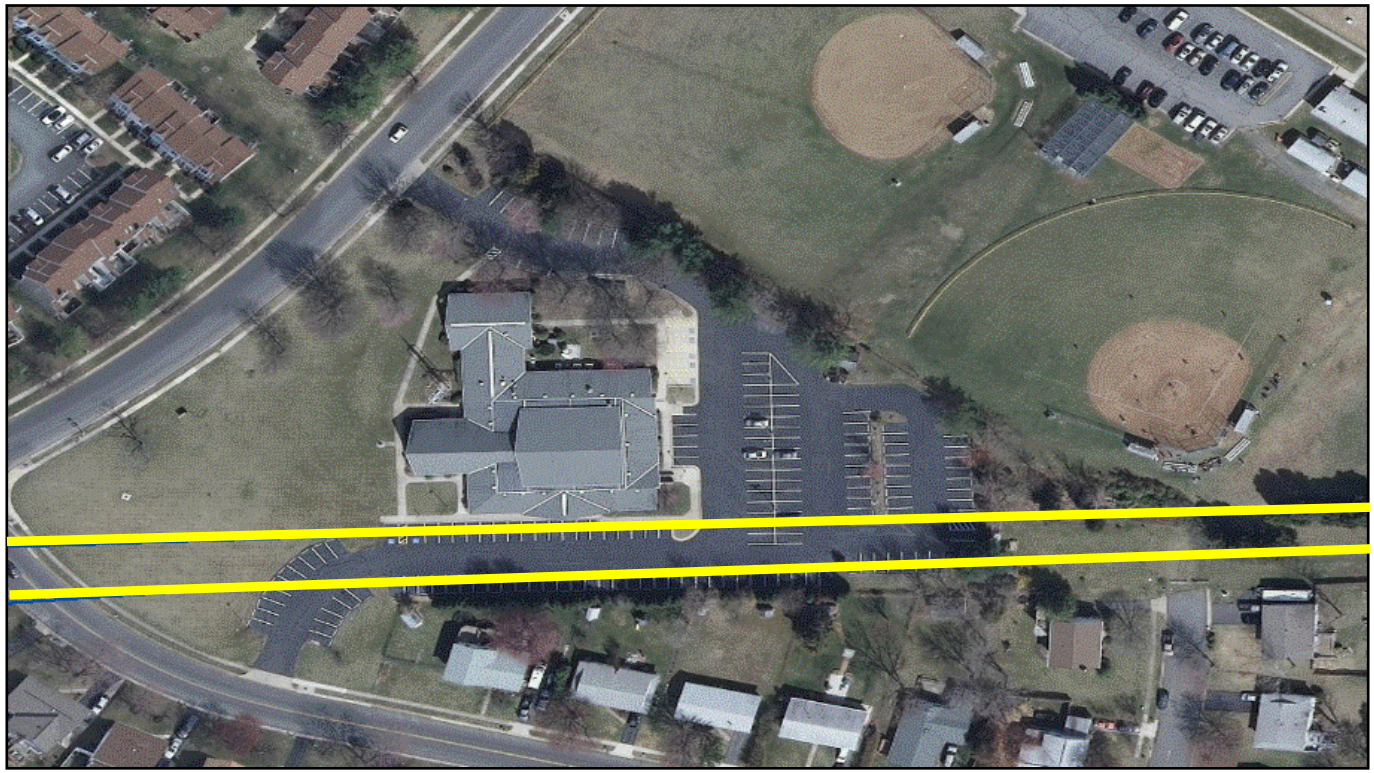
Safety Programs
Public Outreach
State Pipeline Profiles:
Choose One...
Print
Community Assistance & Technical Services
The mission of the OPS Community Assistance & Technical Services (CATS) team is an ambitious one:
To advance public safety, environmental protection and pipeline reliability by facilitating clear communications among all pipeline stakeholders, including the public, the operators and government officials.
An important aim of the CATS program is to reach out to all pipeline safety stakeholders. Responsibilities of CATS managers include:
Communicating information to help communities understand pipeline risks and improve pipeline safety and environmental protection.
Fostering effective communications regarding pipeline safety among PHMSA, other federal agencies, state pipeline safety regulators, elected and emergency officials, pipeline operators and the public.
Serving as "honest brokers" in facilitating permits required for safety-related pipeline repairs.
In carrying out their responsibilities, CATS program managers perform a variety of activities. These include:
Participating with state and regional damage prevention groups and the Common Ground Alliance to further the implementation of damage prevention best practices.
Helping states assess their damage prevention programs and opportunities.
Serving as designated PHMSA representatives before a wide variety of stakeholders. CATS managers routinely provide informational presentations to various stakeholder groups to broaden public awareness of our country's energy transportation pipeline systems.
Meeting with federal, state and local regulatory agencies, and pipeline operators to facilitate timely issuance of permits necessary for conducting pipeline integrity activities.
Providing consultation to regulators, regulated parties and other stakeholders regarding new and amended regulatory requirements.
Responding to public inquiries and complaints regarding pipelines and
CATS managers are located within each PHMSA region. Contact informa
is noted below.
OPS Central Region
Illinois; Indiana; Iowa; Kansas; Michigan; Minnesota; Missouri; Nebraska; North Dakota; Ohio; South Dakota; Wisconsin.
Harold Winnie:
harold.winnie@dot.gov
Phone: (816) 329-3800
Allan Beshore:
Allan.Beshore@dot.gov
Phone: (816) 329-3811

Next Steps for Local Governments

- Locate pipelines in you jurisdiction (NPMS)
- Read the PIPA Report & Tools
- Assess your communities level of risk tolerance for land use/development near pipelines
- Put a plan in place to address your community's needs using PIPA recommended practices
- Consider pipelines in your hazard mitigation plan
- Contact the pipeline operators in your area to inform them of the actions

pipa
Pipelines and Informed Planning Alliance
PIPA-info.com

RP ND22 Reduce Transmission Pipeline Risk through Design and Location of New Places of Mass Public Assembly



…Evacuation routes should…have a safe means of egress with exits located where they would not be made inaccessible by the impacts of a pipeline incident…

Questions?

AICP #e. 23341

Please visit the Certification Maintenance section of APA's website (www.planning.org/cm) to claim your credits; you may use the following steps:

(1) Login using your ID# and password.

(2) Select My CM log

(3) Select Add Credits

(4) Under Browse you have the option of searching by Date, Provider, or Distance Education and using the search box to type in the name of the event or activity and clicking go

(5) If you search Activities by Date, on the left of the calendar view, please use the "previous" and "next" options to locate the month. On the right of the calendar view, please use the "previous" and "next" options to select the year

(6) If searching Activities by Provider, using the letters, please select the initial of the first name of the provider. From the list, then select the name of the provider

(7) Select the "Past Events" tab to locate the event you have attended

(8) If searching Distance Education, after selecting, you will see a list of all distance education activities. To select, click on the name of the activity

(9) A pop-up box will appear.

(10) Please rate, add a comment (optional), and click on the Ethics statement and answer

(11) Click submit and the CM credits should appear in your CM log

If you have problems reporting your CM credits or have general questions about our CM program, please contact AICPCM@planning.org. APA's customer service associates are available to assist you.

Thank you for your time and interest in pipeline safety!

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U.S. Department of Transportation | Pipeline & Hazardous Materials Safety Administration

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