Governor's Pipeline Infrastructure Task Force (PITF) Report

Draft

February 2016

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LETTER FROM TASK FORCE TO GOVERNOR TOM WOLF

TO COME AT CONCLUSION OF TASK FORCE PROCESS

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EXECUTIVE SUMMARY AND RECOMMENDATIONS FROM THE TASK FORCE

TO COME AT CONCLUSION OF TASK FORCE PROCESS

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BACKGROUND ON THE PIPELINE INFRASTRUCTURE TASK FORCE

Pennsylvania Governor Tom Wolf appointed the Department of Environmental Protection (DEP) Secretary John Quigley to serve as the Pennsylvania Pipeline Infrastructure Task Force (PITF) Chairman in May 2015, and appointed 48 Task Force members in July 2015. He charged the Task Force to provide a final report on the PITF activities by February 2016.

Through an open solicitation process each member voluntary requested to be on the Task Force or to serve on a Workgroup. Appointees were not compensated and were not considered an employee or official of the state; however, portions of the Governor's Code of Conduct at 7 *Pa. Code* §§ 7.151-7.159 (http://www.pacode.com/secure/data/007/chapter7/subchapKtoc.html) apply to appointees, including the Gift Ban.

MISSION

In the next decade, Pennsylvania will undergo a substantial pipeline infrastructure build-out to transport gas and related byproducts from thousands of wells throughout the state. The unprecedented build-out creates an opportunity for the Commonwealth to engage stakeholders in a collaborative process to achieve a world-class pipeline infrastructure system.

As a stakeholder-driven effort, the PITF was tasked with developing policies, guidelines and tools to assist in pipeline development (including planning, permitting and construction) as well as long-term operation and maintenance.

This has been a transparent process, and entailed close coordination with federal agencies, state partners, local governments, industry representatives, landowners and environmental advocates.

OBJECTIVES AND RESPONSIBILITIES

The purpose and goals of the Task Force were to define a series of best practices and recommendations to:

- Plan, site and route pipelines in ways that avoid or reduce environmental and community impacts;
- Amplify and engage in meaningful public participation;
- Maximize opportunities for predictable and efficient permitting;
- Employ construction methods that reduce environmental and community impact; and
- Ensure pipeline safety and integrity during operation of the pipeline.

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PROCESS

The PITF conducted four meetings in 2015 and one meeting in 2016: July 22, August 26, September 23, October 28, November 18 and January 13. In addition, PITF created 12 workgroups that were charged with specific issues related to the Pipeline Infrastructure. A chair was appointed to each workgroup to set up agendas and guide the workflow. Meetings of the PITF were advertised and open to the public, and streamed live via the Internet.

Agendas, full copies of presentations and other material presented at the Task Force meetings were sent to the Task Force and Workgroup members and also posted on the DEP Pipeline Infrastructure Task Force website:
http://www.portal.state.pa.us/portal/server.pt/community/pipeline_infrastructure_task_force/22066

Task Force meetings included updates from the workgroup chairs on the activities and presentations by various subject matter experts. The expertise, guidance and professionalism of these individuals were critical in developing this report.

TASK FORCE COMPOSITION

The Task Force was made up of 48 representatives from state agencies, the General Assembly, federal and local governments, the pipeline and natural gas industries and environmental groups, among others.

The Task Force was informed by twelve workgroups:

- Agriculture
- Conservation & Natural Resources
- County Government
- Emergency Preparedness
- Environmental Protection
- Historical/Cultural/Tribal
- Local Government
- Natural Gas End Use
- Pipeline Safety and Integrity
- Public Participation
- Siting and Routing
- Workforce/Economic Development

Each workgroup was asked to:

- Establish the framework of information-gathering and productive discussion around best management practices within the particular workgroup focus area;
- Conduct a series of working sessions with workgroup members and other stakeholders as deemed appropriate and/or necessary to fully understand the issues related to pipeline infrastructure development within the context of the workgroup focus area;
- Develop, for consideration by the Task Force, a series of recommended best practices; and
- Develop, for consideration by the Task Force, other recommendations within the context of the workgroup focus area.

The information developed by the workgroup was reported to the Task Force for additional discussion and consideration, and incorporation into this final report to the Governor.

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TASK FORCE MEMBERS

State Government:
John Quigley, Secretary, DEP (Task Force chair)
Dennis Davin, Secretary, Department of Community and Economic Development
(Denise Brinley, Department of Community and Economic Development &
Neil Weaver, Department of Community and Economic Development – Alternates)
Karen Murphy, Secretary, Department of Health
(Corey Coleman, Department of Health – Alternate)
Leslie S. Richards, Secretary, Department of Transportation
(Leo Bagley, Department of Transportation – Alternate)
David Sweet, Special Assistant, Governor's Office
(Ben Zhang, Governor's Office – Alternate)
John Hanger, Secretary, Policy and Planning, Governor's Office
(Sam Robinson, Governor's Office – Alternate)
Dan Devlin, State Forester, Department of Conservation and Natural Resources
Michael F. Smith, Executive Deputy Secretary, Department of Agriculture
Richard D. Flinn, Jr., Director, Pennsylvania Emergency Management Agency
(Angel Gillette, Pennsylvania Emergency Management Agency &
Alan Brinser, Pennsylvania Emergency Management Agency – Alternates)
Heather Smiles, Chief, Division of Environmental Services, Pennsylvania Fish and Boat Commission
(Mark Hartle, Pennsylvania Fish and Boat Commission – Alternate)
Michael R. DiMatteo, Chief, Division of Environmental Planning and Habitat Protection, Pennsylvania Game Commission
Serena Bellew, Deputy State Historic Preservation Officer, Pennsylvania Historic Museum Commission
Doug McLearen, Division Manager, Pennsylvania Historic Museum Commission
Gladys Brown, Chairman, Pennsylvania Public Utility Commission
(Paul Metro, Pennsylvania Public Utility Commission &
Matthew Wurst, Pennsylvania Utility Commission – Alternates)
David Smith, Property Management Administrator, Pennsylvania Turnpike Commission

External Stakeholders:

Agriculture
David Messersmith, Penn State Extension, Honesdale, Wayne County

Conservation and Natural Resources
Mark Gutshall, LandStudies, Lititz, Lancaster County

Conventional Oil and Gas
Nicholas Geanopulos, Geanopulos Representations, Mount Lebanon, Allegheny County

County Government
Kathi Cozzone, Chester County Commissioner, Exton, Chester County

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Emergency Preparedness
William Kiger, PA1Call System, West Mifflin, Allegheny County

Environmental Protection
Davitt Woodwell, Pennsylvania Environmental Council, Pittsburgh, Allegheny County
Kenneth Klemow, Wilkes University, Wilkes-Barre, Luzerne County
Michael Gross, Post & Schell, P.C., Philadelphia
(Stephen Luttrell. Post & Schell – Alternate)
Michael Helbing, Citizens for Pennsylvania's Future, Archbald, Lackawanna County

Federal Government
David Hanobic, Federal Energy Regulatory Commission, Washington D.C.
Steve Tambini, Delaware River Basin Commission, West Trenton, New Jersey
Col. Ed Chamberlayne, U.S. Army Corps of Engineers, Baltimore, Maryland
(Bill Seib, U.S. Army of Corps of Engineers – Alternate)

Historic/Cultural/Tribal
Curtis Biondich, BL Companies, Oakmont, Allegheny County

Local Government
Marvin Meteer, Wyalusing Township, Wyalusing, Bradford County

Natural Gas End User
Cristina Jorge Schwarz, Apex Companies LLC, Malvern, Chester County
Wayne Gardner, W E Gardner Company, LLC, Downingtown, Chester County

Pipeline Industry
Duane Peters, American Council of Engineering Companies - PA Chapter, Harrisburg, Dauphin County
(Sara Blascovich, American Council of Engineering Companies – Alternate)
Joe Fink, CONE Midstream Partners LP, Canonsburg, Washington County
Thomas Hutchins, Kinder Morgan, Tomball, Texas
Dave Callahan, MarkWest, Canonsburg, Washington County
Joseph McGinn, Sunoco Logistics Partners LP, Philadelphia
Cindy Ivey, Williams, Houston, Texas

Pipeline Safety and Integrity
Keith Coyle, Van Ness Feldman, Arlington, Va.

Unconventional Oil and Gas
Fredrick Dalena, EQT Corporation, Pittsburgh, Allegheny County
Justin Trettel, Rice Energy, Canonsburg, Washington County
Mark Reeves, Shell, Sewickley, Allegheny County
Sarah Battisti, Southwestern, Camp Hill, Cumberland County
Walter Hufford, Talisman Energy/Repsol, Warrendale, Allegheny County

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Workforce/Economic Development
Anthony Gallagher, Steamfitters LU420, Philadelphia
Don Kiel, SEDA-COG, Lewisburg, Union County

Legislative Appointments:

President Pro Tempore of the Senate
Terry Bossert, Range Resources, Mechanicsburg, Cumberland County

Minority Leader of the Senate
Andrew Dinniman, Pennsylvania Senate

Speaker of the House
Lauren Parker, Civil and Environmental Consultants, Pittsburgh, Allegheny County

Minority Leader of the House
William Keller, Pennsylvania House of Representatives

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WORKGROUP MEMBERS

Agriculture: This workgroup was tasked with developing best practices related to avoiding, minimizing, and mitigating the impacts of pipeline infrastructure development on the agricultural sector including, but not limited to, consideration of preserved farmland, crop valuation, top soil segregation and preservation, agricultural drainage, farm field roads, no till and organic farms, and reclamation.

Michael Smith, Executive Deputy Secretary, Department of Agriculture (Chair)
Hannah Smith-Brubaker, Department of Agriculture
David Messersmith, Penn State Extension
James Kennedy, Four Seasons Farm
Ross Pifer, Penn State Dickinson School of Law
Christian Herr, PennAg Industries
Ronald Kopp, Stoney Lawn Farms
Hathaway Jones, USDA/NRCS
Larry Morton, Tallman Family Farms
David Garg, Department of Environmental Protection

Conservation and Natural Resources: This workgroup was tasked with developing best practices related to avoiding, minimizing, and mitigating the impacts of pipeline infrastructure development on, but not limited to, species, habitat, and wildlife, scenic vistas and aesthetics, recreational values, and State Forest and State Game Lands.

Dan Devlin, State Forester, Department of Conservation and Natural Resources (Chair)
Mark Gutshall, LandStudies
Michael DiMatteo, PA Game Commission
Cathy Yeakel, Bradford County Conservation District
George Kelly, Resource Environmental Solutions
John Conroy, SWCA Environmental Consultants
Jay Parrish, Jay Parrish LLC
Trevor Walczak, National Association of Royalty Owners, PA Chapter
Silas Chamberlin, Schuylkill River National Heritage Area
Ed Patterson, Indiana County Parks and Trails
Raymond Banach, Precision Pipeline LLC
Thomas Barnard, Independent Consultant
Karen Martynick, Lancaster Farmland Trust
John Donahue, National Park Service
Kim Childe, Department of Environmental Protection

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County Government: This workgroup was tasked with defining the intersection of pipeline projects with county government functions – including GIS mapping and long range land use planning in order to define best practices related to harmonizing pipeline infrastructure development with county land use planning.

Kathi Cozzone, Chester County Commissioner (Chair)
Roy Livergood, Jr., York County Planning Commission
Donna Iannone, Sullivan County Commissioner
Harlan Shober, Jr., Washington County Commissioner
Robert Wheat, Comtech Industries
Lisa Schaefer, County Commissioners Association
Gary Dovey, Penn Northwest Development Corporation
Tonya Winkler, Rice Energy
Dana Aunkst, Department of Environmental Protection

Emergency Preparedness: This workgroup was tasked with developing best practices related to on-the-ground first response and developing adequate and appropriate training programs for first responders in communities impacted by pipeline infrastructure development.

Richard D. Flinn, Jr., Director, Pennsylvania Emergency Management Agency (Chair)
Angel Gillette, Pennsylvania Emergency Management Agency (Alternate Chair)
Alan Brinser, Pennsylvania Emergency Management Agency (Alternate Chair)
William Kiger, PA1Call System
Adrian King, Jr., Ballard Spahr
Adam Johnson, Emporium Volunteer Fire Department
Craig Konkle, Lycoming County Department of Public Safety
Scott Polen, Retired
Christopher Zwiebel, Zwiebel EHS for Energy
Paul Cook, Center Township Supervisor
Lyle Hoovler, Sadsbury Township Supervisor
Lester Houck, Salisbury Township Supervisor
Robert May, Synergy Environmental
George Turner, West Whiteland Township Supervisor
Patrick Pauly, PA State Fire Academy
Kerry Leib, Department of Environmental Protection

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Environmental Protection: This workgroup was tasked with developing best practices related to the protection of land, water and air during pipeline infrastructure development and identify ways to maximize opportunities for predictable and efficient permitting across state and Federal jurisdictions.

Hayley Jeffords, Department of Environmental Protection (Chair)
Kenneth Klemow, Wilkes University
Heather Smiles, Pennsylvania Fish and Boat Commission
Karen Murphy, Secretary, Department of Health
Steve Tambini, Delaware River Basin Commission
Lauren Parker, Civil and Environmental Consultants
Robert Hughes, Eastern Pennsylvania Coalition for Abandoned Mine Reclamation
Kinsasha Brown, Environmental Protection Agency
John Gaadt, Gaadt Perspectives LLC
Jonathan Rinde, Manko Gold Katcher Fox
Davitt Woodwell, Pennsylvania Environmental Council
Steven Ewing, Woodard and Curran
Brian Bury, DTE Energy
Michael Gross, Post & Schell
Walt Hufford, Talisman Energy/Repsol
Michael Helbing, Citizen's for Pennsylvania's Future
Will Ratcliffe, Williams
Colonel Ed Chamberlayne, U.S. Army Corps of Engineers
Joe Buczynski, Department of Environmental Protection

Historical/Cultural/Tribal: This workgroup was tasked with developing best practices related to protection of historic and cultural resources and identifying ways to maximize tribal involvement in pipeline infrastructure development.

Serena Belew, Deputy State Historical Preservation Officer, PA Historical Museum (Co-Chair)
Doug McLearen, PA State Historical Museum (Co-Chair)
Curt Biondich, TRC Solutions
David Jones, Native Preserve and Land Council
Kathie Gonick, Lancaster County Conservancy
Julie Lalo, Department of Environmental Protection

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Local Government: This workgroup was tasked with identifying important issues to local governments across the Commonwealth before, during, and after pipeline infrastructure development, and identifying best practices in engaging and communicating with local governments as part of that process.

Marvin Meteer, Wyalusing Township Supervisor (Chair)
Rebecca Miles, Conestoga Township Supervisor
James Pennington, Lower Nazareth Township
Keith Shaner, Penn Township Supervisor
Pasquale Avolio, Pine Township Supervisor
Mark Freed, Tredyffrin Township Supervisor
Laura Hough, West Pike Run Township Supervisor
Michelle O'Brien, O'Brien Law Group
Clayton Anderson, Williams
Joseph Ferguson, Allegheny Township Board of Supervisors
Bartley Millett, Durham Township Board of Supervisors
Steven Risk, Paul Risk Associates
Vincent Pompo, East Bradford Board of Supervisors
Sarah Clark, Department of Environmental Protection

Natural Gas End Use: This workgroup was tasked with identifying potential expansion options in PA for end uses of the gas, including but not limited to energy technologies such as combined heat and power (CHP) and natural gas fuel cells that can benefit Pennsylvania businesses and spur the creation of micro grids; economic/regulatory obstacles; and methods by which communities that are currently not served by natural gas – particularly those in proximity to the resource – can avail themselves of access to it.

Sarah Battisti, Southwestern Energy (Chair)
Cristina Jorge Schwarz, Apex Companies LLC
Terry Bossert, Range Resources
Wayne Gardner, WE Gardner Company
Francis Rainey, PEI Power Corporation
Michael Butler, Consumer Energy Alliance
Paul Hartman, America's Natural Gas Alliance
Michael Huwar, Columbia Pipeline Group
Terrance Fitzpatrick, Energy Association of Pennsylvania
Jeffrey Davis, ETC Northeast Pipeline LLC
Erin Vizza, Greater Philadelphia Chamber of Commerce
Dave Callahan, MarkWest
Frank Sorg, Midlantic Advisors
Jeffrey Warmann, Monroe Energy
Joe McGinn, Sunoco Logistics
Donald O'Hora, Northway Industries, Inc.
Stephen Wisyanski, Department of Revenue
Dennis Davin, Department of Community and Economic Development
Patrick McDonnell, Department of Environmental Protection

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Pipeline Safety and Integrity: This workgroup was tasked with identifying best practices for construction (including construction inspection), pipeline testing and inspection, and long term operations and maintenance to ensure long term pipeline safety and integrity. Special consideration should be given to Leak Detection and Repair (LDAR) to minimize methane emissions from pipeline infrastructure.

Gladys Brown, Chairman, Public Utility Commission (Chair)
Paul Metro, Public Utility Commission (Alternate Chair)
Matthew Wurst, Public Utility Commission (Alternate Chair)
Keith Coyle, Van Ness Feldman
Emily Krafjack, Connection for Oil, Gas and Environment - Northern Tier
Barry Hutchins, County of Lycoming Department of Public Safety
Tom Hutchins, Kinder Morgan
Lynda Farrell, Pipeline Safety Coalition
Keith Rutherford, Plumbers Pipefitters Welders of UA Local 520
Morgan Abele, PULS, Inc.
Anthony DeCesaris, Williams
Lisa Dorman, Department of Environmental Protection

Public Participation: This workgroup was tasked with developing best practices to amplify and engage in meaningful public participation in the pipeline infrastructure development process.

Cindy Ivey, Williams (Chair)
John Hanger, Secretary, Policy and Planning, Governor's Office
Sam Robinson, Governor's Office
Andrew Dinniman, Pennsylvania Senator
David Hanobic, Federal Energy Regulatory Commission
Raul Chiesa, Beckets Run Woodlands
Eileen Juico, Independent Consultant
Gerald Powers, Montour Township Supervisor
Alisa Harris, UGI Energy Services
Raynold Wilson, Jr., Wyoming County Landowners
Nolan Ritchie, Executive Director, Senator Rafferty's Office
Marcus Kohl, Department of Environmental Protection

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Siting and Routing: This workgroup was tasked with developing best practices related to planning, siting and routing pipelines in ways that avoid, minimize, or mitigate environmental and community impacts from pipelines across the Commonwealth.

Leslie Richards, Secretary, Department of Transportation (Chair)
Leo Bagley, Department of Transportation (Alternate Chair)
Duane Peters, American Council of Engineering Companies - Penna. Chapter
David Smith, Turnpike Commission
Roy Kraynyk, Allegheny Land Trust
Alan Seltzer, Buchanan Ingersoll and Rooney
Joe Fink, CONE Midstream Partners LP
Raymond Schilling, Erdman Anthony
Robert Burnett, Houston Harbaugh
Joshua Billings, Lycoming County Planning and Community Development
Robert Payne, Pennsylvania General Energy Company LLC
Justin Trettel, Rice Energy
Mark Reeves, Shell
John Sheridan, Spectra Energy
Liz Johnson, The Nature Conservancy
Michael Kasprzak, National Fuel Gas Company
Domenic Rocco, Department of Environmental Protection

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Workforce and Economic Development: This workgroup was tasked with considering the workforce and economic development potential for the Commonwealth related to pipeline infrastructure development. Working collaboratively with the Natural Gas End Use Workgroup, this workgroup will focus on identifying approaches to creating opportunities for existing and new Pennsylvania businesses and manufacturers to utilize natural gas, including but not limited to business recruitment strategies; encouraging the creation of offtake points for local economic development during pipeline planning; policy/regulatory/financial obstacles; developing a skilled workforce.

David Sweet, Special Assistant, Governor's office (Chair)
Beining Zhang, Governor's Office (Alternate Chair)
Don Kiel, SEDA COG
Dennis Davin, Secretary, Department of Community and Economic Development
John Hayes, AFC First
Ken Zapinski, Allegheny Conference on Community Development
Jeffrey Logan, Bravo Group
Joy Ruff, Dawood Engineering
Fredrick Dalena, EQT Corporation
Nicholas Geanopulos, Genaopulos Representations, Mount Lebanon, Allegheny County
Robert Durkin, Greater Scranton Chamber of Commerce
Lue Ann Pawlick, Middle Monogahala Industrial Development Association
Kim Barnes, Northern Tier Regional Planning and Development Commission
Deb Lutz, Oil Regional Alliance of Business, Industry and Tourism
Randy Seitz, Penn Northwest Development Corporation
Frank Zukas, Schuylkill Economic Development Corporation
Ronald McGlade, Tenaska Resources LLC
William Doyle, US Federal Maritime Commission
Anthony Gallagher, Steamfitters LU420
David Horn, Laborers International Union of North America
Martina White, Pennsylvania House of Representatives
William Keller, Pennsylvania House of Representatives
Cosmo Servidio, Department of Environmental Protection

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PIPELINE INFRASTRUCTURE DEVELOPMENT IN PENNSYLVANIA AND THE ROLE OF THE PIPELINE INFRASTRUCTURE TASK FORCE

Pennsylvania is rich in natural resources, and the state's timber, coal and oil have fed ever-growing industrial, commercial and residential energy needs – both domestic and global - since the early decades of this nation. Since the start of the 21st century, new technologies to unlock natural gas from the shale formations deep beneath Pennsylvania's surface have opened a new wave of energy development.

Beginning in 2005, horizontal drilling methods combined with high-volume hydraulic fracturing techniques have made possible the capture of natural gas from Pennsylvania's shale deposits. Since 2008, Pennsylvania's natural gas production has increased dramatically. In 2014, more than four trillion cubic feet of natural gas were produced in Pennsylvania, making the state the second-largest supplier of natural gas in the nation.

Drilling for natural gas in Pennsylvania has far outpaced the development of the infrastructure needed to get that gas to markets. Almost a third of the wells that have been drilled in Pennsylvania since 2004 are shut in because the pipelines to move that gas from the well to end users have not caught up with the pace of drilling. So, the primary challenge the industry faces now is to get the gas around or out of Pennsylvania to connect it to customers.

That challenge exists because natural gas is not used at the point of extraction. Infrastructure is needed to process, compress, store and transport the natural gas to market. As outlined in the *Governor's Marcellus Shale Advisory Commission Report*[i], the natural gas industry is divided into three parts: upstream, midstream and downstream. Exploration, extraction and production are upstream activities. Gathering gas from multiple wells, storage and the treatment of gas are midstream activities. These gathering lines connect the wells to the processing stations and lead to the downstream lines: transmission lines, used for processing, transportation and storage; and distribution lines, which terminate at processing or consumer endpoints.

Pennsylvania already has more than 12,000 miles of large-diameter oil and gas pipelines in the ground, but now, according to *Pipeline Development – Strategies and Tools to Minimize Landscape Impacts,* a presentation made to the PITF by The Nature Conservancy[ii], the miles of natural gas gathering lines alone will at least quadruple by 2030. The footprint of just that expansion is larger than the cumulative area impacted by all other Marcellus gas infrastructure combined, and could exceed 300,000 acres, or 1 percent of the state's land area. The movement of natural gas will also require compressor stations, estimated to number in the hundreds, to be built along the anticipated pipeline miles. All told, this pipeline infrastructure build-out will impact communities and the environment in every county in Pennsylvania.

According to *Natural Resource Management of Pipeline Infrastructure*[iii], a presentation made to the PITF by the Pennsylvania Department of Conservation and Natural Resources (DCNR) Bureau of Forestry, the land use impacts include:

- Surface disturbance;

- Forest fragmentation;
- Habitat loss and species impacts;
- Invasive plant spreading;
- Loss of wild character; and
- Soil erosion and sedimentation.

One of the greatest challenges to ensuring the reduction of impact and the consistency of responsible and safe transmission is that no single federal or state agency is responsible for pipeline permitting. Permits are not reviewed for the cumulative and long-term impacts at a landscape level. Chosen routes do not necessarily avoid sensitive lands, habitats, and natural features, nor are the impacts to natural and cultural resources, landowners, and communities along them always minimized or mitigated.

This lack of smart planning can lead to individual decisions accumulating into a much broader and longer impact on the citizens and the lands of a community, county or watershed. It can also waste financial resources. According to *The Case for Smart Planning in Pipeline Infrastructure Development*[iv], a presentation made to the PITF by Secretary Quigley, the use of smart planning in pipeline infrastructure development can lower overall development costs.

To analyze the challenges and propose strategies to overcome them, Governor Tom Wolf established the PITF in May 2015, led by Secretary Quigley. He charged Secretary Quigley to conduct a collaborative conversation among all stakeholders -- state, federal and local regulatory agencies; communities; environmental and cultural resource groups; and companies – and together, identify best practices and other recommendations that focus on:

- Planning, siting and routing pipelines to avoid/reduce environmental and community impacts;
- Amplifying and engaging in meaningful public participation;
- Maximizing opportunities for predictable and efficient permitting;
- Employing construction methods that reduce environmental impact; and
- Developing long-term operations and maintenance plans to ensure pipeline safety and integrity.

In his opening remarks to the PITF in July 2015, as Task Force chair, Secretary Quigley[v] said that Governor Wolf expects that Pennsylvania should take full economic advantage of this immense energy resource while ensuring that extraction and transmission of it is done responsibly.

Secretary Quigley reviewed the 2011 Marcellus Shale Advisory Commission report's recommendations that smart planning is an essential tool to reduce the cumulative impacts of the expected pipelines. The report recommended identifying the legislative and regulatory changes needed to:

- Effect sharing of pipeline capacity, reduce surface disturbance and associated environmental impacts;
- Encourage use of existing pipeline infrastructure, and co-location with other rights-of-way;

- Achieve coordination and consistency of infrastructure planning and siting decisions by state, county and local governments; and
- Provide sufficient authority and resources for appropriate government agencies to ensure that ecological and natural resource data are used in review and siting of proposed pipelines, to avoid or minimize impacts to these resources.

Secretary Quigley also reviewed the *Report to the General Assembly on Pipeline Placement of Natural Gas Gathering Lines*[vi], submitted by the Office of Governor Tom Corbett that contained six basic recommendations:

- Remove legal impediments to the sharing of state and local road rights-of-way with gathering lines to encourage the use of existing corridors and reduce habitat fragmentation;
- County planning offices should work with drillers and gathering line companies to maximize opportunities for shared rights-of-way;
- Enhance the PA Natural Diversity Inventory (PNDI) review tool to assist gathering line developers in avoiding conflicts with threatened and endangered species;
- DEP should adopt environmental review standards for drilling proposals that avoid surface disturbances, impacts on sensitive lands, forest fragmentation, viewsheds and direct intersection with waterways;
- County and municipal governments should be encouraged to consult with gathering line operators to better understand the implications of a proposed project on local comprehensive plans; and
- Pipeline operators should be encouraged to consult with appropriate experts to replant rights-of-way with vegetation that fosters habitat development for wildlife

Secretary Quigley pointed out that there are numerous examples of the successful adoption of smart planning by Federal and state government agencies and oil and gas companies, and strong endorsement of the practice by industry trade groups and analysts. There is, he said, a critical need for smart planning in the development of pipeline infrastructure in Pennsylvania, extensive cross-sectorial and investor support for it, and robust recommendations for and an emerging practice of it.

Secretary Quigley concluded that Pennsylvania has the opportunity to take a national leadership position in demonstrating how smart planning can achieve environmental and business "win-wins" that will go a long way to ensuring responsible production of shale gas.

Each of the ensuing monthly Task Force meetings included an opportunity for the public to comment. During the October 28 meeting, 27 individuals provided comments to the Task Force. The individuals' comments ranged from concerns about the impacts of climate change on Pennsylvania, and home and livelihood damages that landowners attribute to natural gas drilling, to frustration with pipeline companies' treatment of landowners and communities. In general, citizens urged DEP to enforce existing regulations, enact appropriate fines, proactively monitor natural gas extraction, and do away with any self-reporting. Several citizens specifically expressed calls for Governor Wolf to immediately disband the Task Force for their belief that the composition is heavily weighted with industry representation.

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All presentations made to the Task Force, video recordings of the proceedings and transcripts can be found on the DEP's Pipeline Infrastructure Task Force website http://www.portal.state.pa.us/portal/server.pt/community/pipeline_infrastructure_task_force/22066/.

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LEGAL FRAMEWORK FOR OIL AND NATURAL GAS PIPELINE DEVELOPMENT IN PENNSYLVANIA

Pipeline Location

In general, the location of most pipelines transporting oil or natural gas in Pennsylvania is determined by transactions between private parties governed by common law property and contract principles. Individuals or entities interested in the development of oil or gas resources on their property typically negotiate leases with companies in the business of developing these resources. Oil and gas leases usually allow for the construction of pipelines on the leased property to transport the oil or natural gas produced to the point of sale. A landowner's ability to control the location of such pipelines is governed by the terms of the lease and the parties' willingness to negotiate the location.

When oil and gas development companies need to construct pipelines across properties that are not subject to oil and gas leases, they negotiate with the landowners to obtain the right to construct their pipelines, typically through an easement or right of way agreement. The rights of landowners to control the location of oil or natural gas pipelines on their property are limited under the law in two instances. The first instance occurs when the rights to the oil or gas are severed from surface ownership. The second occurs when statutes grant the right for the unilateral acquisition of property for a public benefit through condemnation proceedings.

In the first circumstance, the right of a landowner to control pipeline development may be limited because the landowner did not acquire the subsurface oil or gas rights when the landowner purchased the property. In this situation, the common law in Pennsylvania requires the surface landowner to grant access to the owner of the subsurface oil or gas rights for activities necessary to develop the oil or gas. The rights of the surface landowner will be governed by the terms of the deed executed at the time the subsurface oil or gas rights were severed from the surface ownership, as well as common law principles developed through court decisions. In general, both the surface landowner and owner of the subsurface oil or gas have the right to use and enjoyment of their property and must give due regard to the rights of the other.[1]

Landowners may also be required to allow pipeline development on their property when the pipeline is considered to provide an important public benefit. The federal Natural Gas Act[2] authorizes the Federal Energy Regulatory Commission (FERC) to review applications for proposed interstate natural gas transmission pipelines and to grant certificates of public convenience and necessity when it determines the proposed pipeline provides important public benefits. When FERC grants such a certificate, the pipeline company has the right to obtain the property necessary for construction of the pipeline through condemnation proceedings if the company is unable to negotiate the purchase of the necessary property rights from the landowner.

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[1] *Chartiers Block Coal Co. v. Mellon*, 25 A. 597 (Pa. 1893); *Belden & Blake Corp.*, 969 A.2d 528 (Pa. 2009).
[2] 15 U.S.C. §§ 717-717z.

In addition to the above common law principles and federal law authority, the location of a proposed pipeline may be modified as a result of conditions of environmental permits required for the project (see discussion below). In addition, municipalities in Pennsylvania may have ordinances related to zoning, subdivision and land use, stormwater control, open space or other issues of local concern that may impose restrictions on the location of oil and gas pipelines within their jurisdictions.

Pipeline Construction, Operation and Maintenance

Department of Environmental Protection Regulation

The construction, operation and maintenance of oil and gas pipelines in Pennsylvania are regulated by the Department of Environmental Protection (DEP) under various environmental statutes in the same manner that other land development activities are regulated. DEP has authority to protect waters of the Commonwealth through various state statutes, including the Pennsylvania Clean Streams Law[3] and the Pennsylvania Dam Safety and Encroachments Act[4]. Companies constructing pipelines must comply with Pennsylvania's water quality standards in Chapter 93 and the contained in various regulations implementing those standards, including the erosion and sediment control requirements in Chapter 102, the water obstruction and encroachment requirements in Chapter 105, and surface water discharge requirements in Chapter 92a.[5] Pipeline companies may be required to obtain individual water quality permits under these regulations or may be able to obtain coverage under general permits issued by DEP. In many counties, DEP has delegated authority to the County Conservation District to administer and enforce certain aspects of the Chapter 102 and 105 programs.

When a pipeline company is required to obtain a federal authorization to construct a pipeline, the federal Clean Water Act[6] requires the company to also obtain a certification stating that the project will comply with state law requirements necessary to protect water quality from the state in which the project is located. This certification document is referred to as a "state water quality certification". The Clean Water Act further requires the federal agency issuing the authorization to include any conditions imposed by the state in its state water quality certification in the federal authorization for the project. In Pennsylvania, this state water quality certification may relate to and be satisfied by compliance with state permitting requirements such as those described above.

A pipeline project in Pennsylvania will typically require a federal authorization that triggers the need for a state water quality certification in the two circumstances. Pipeline projects will require a federal permit for the discharge of dredged or fill material from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act when pipelines cross a regulated water body. If no other federal authorization is required, DEP will typically issue its state water quality certification for this federal permit when it issues its Chapter 105 water obstruction and encroachment permit for the project. As discussed above, a federal authorization is also required from FERC for interstate

[3] 35 P.S. §§ 691.1-691.1001.
[4] 32 P.S. §§ 693.1-693.27.
[5] 25 Pa. Code Chapters 93, 92a, 102, and 105.
[6] 33 U.S.C. § 1341.

natural gas transmission pipeline projects. These projects typically require several permits, authorizations or approvals from DEP to protect waters of the Commonwealth. As a result, DEP typically issues its state water quality certification for these projects independent of permit issuance, and conditions the certification upon obtaining and complying with all appropriate state law requirements.

DEP also has authority to protect air resources in Pennsylvania under the Pennsylvania Air Pollution Control Act.[7] DEP regulates air emissions through the issuance of plan approvals and operating permits under Chapter 127.[8] Such approvals and permits are typically associated with air emissions from compressor stations constructed to pressurize natural gas pipelines. The emission of air pollutants from other equipment such as dehydrators, tanks and pipeline valves may also be regulated.

The Pennsylvania Oil and Gas Act, as amended in 2012, includes certain provisions related to the construction, operation and maintenance of oil and gas pipelines. Buried metallic pipelines must be constructed and operated with corrosion control in accordance with certain federal requirements.[9] In addition, owners and operators of gathering lines are required to provide certain information about the location of known pipelines when a timely request for such information is received prior to a proposed excavation or demolition activity.[10] DEP requires compliance with these provisions when regulating oil and gas activities under the Oil and Gas Act and its implementing regulations in Chapter 78.[11]

Other State Agency Regulation

In addition to the above environmental requirements administered by DEP, other Commonwealth agencies have certain responsibilities related to oil and gas pipeline siting, construction, operation and maintenance. The Public Utility Commission (PUC) is authorized under the Pennsylvania Gas and Hazardous Liquids Pipelines Act[12] to regulate pipeline operators in Pennsylvania consistent with federal pipeline safety standards.[13] These safety standards apply to the design, installation, operation, inspection, testing, construction, extension, replacement and maintenance of pipeline facilities. The PUC also implements regulations related to gas service and facilities in Chapter 59.[14]

The Pennsylvania Department of Conservation and Natural Resources (DCNR) manages the location, construction, operation and maintenance of oil and gas pipelines on public lands managed as part of Pennsylvania's state park and forest system. In addition, DCNR administers the Pennsylvania Natural Heritage Program, which includes PNDI and the online environmental

[7] 35 P.S. §§ 4001-4015.
[8] 25 Pa. Code Chapter 127.
[9] 58 Pa.C.S. § 3218.4; 49 C.F.R. Part 192, Subpart I.
[10] 58 Pa.C.S. § 3218.5; 73 P.S. § 177.
[11] 58 Pa.C.S. §§ 3201-3274; 25 Pa. Code Chapter 78.
[12] 58 P.S. §§ 801.101-801.1101.
[13] 49 U.S.C. §§ 60101-60114; 60129-60133.
[14] 25 Pa. Code Chapter 59.

review tool used to identify species and other natural resources of special concern that are considered as part of environmental permitting processes. Other resource agencies including the Pennsylvania Fish and Boat Commission (PFBC), the Pennsylvania Game Commission (PGC), and the U.S. Fish and Wildlife Service (USFWS) partner with DCNR in maintaining this inventory and have responsibilities for protecting various fish, wildlife and plant species within Pennsylvania.

The Pennsylvania Historic and Museum Commission (PHMC) is responsible for protection of significant archeological, cultural, and historic resources in Pennsylvania under the State History Code.[15] DEP and other Commonwealth agencies are directed by the History Code to institute procedures and policies to assure that their plans, programs, codes, regulations and activities contribute to the preservation and enhancement of all historic resources in Pennsylvania.

Federal Regulation

Certain federal agencies also have authority to regulate aspects of pipeline development nationwide. The Pipeline and Hazardous Material Safety Administration (PHMSA) within the U.S. Department of Transportation implements federal pipeline and hazardous material safety regulations.[16] In addition, as noted previously, FERC has authority to regulate interstate natural gas transmission pipelines under the federal Natural Gas Act. As also mentioned previously, the U.S. Army Corps of Engineers (USACE) issues permits for the discharge of dredged or fill material that may be associated with pipeline construction under Section 404 of the Clean Water Act.

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[15] 37 Pa.C.S. §§ 101-906.
[16] 49 C.F.R. Parts 190-199.

PITF members have heard several presentations on the complex permitting process.

At the July 22, 2015 meeting, the PITF learned about an internal DEP work group, developed to identify and address programmatic issues related to pipeline development. The objective was to unravel the complicated processes related to federal and state regulation of pipelines to improve process efficiency and environmental protection, implement standard operating procedures to improve the permitting process, and develop guidance documents to assist the regulated community. The long-term objective of the workgroup will be to review and develop an implementation strategy for best practices identified by the taskforce to achieve a world-class pipeline infrastructure system and improve PA's environment.

At the October 28, 2015 meeting, federal and state officials identified and described the regulatory frame work and permitting process.

Colonel Ed Chamberlayne, District Commander, Baltimore District, U.S. Army Corps of Engineers (Corps), presented an overview of the Corps Regulatory Program, including the permitting requirements under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act, for the construction of pipelines and associated facilities. Colonel Chamberlayne explained that the Corps also is required to comply with the National Environmental Protection Act and the CWA Section 404(b)(1) guidelines, which require impacts to the aquatic environment to be avoided and minimized to the maximum extent practicable; and that for unavoidable impacts to the aquatic environment, compensatory mitigation is required to replace the lost aquatic functions and services.

Lora Zimmerman, Supervisor for the Pennsylvania Field Office of the U. S. Fish & Wildlife Service (USFWS), presented information on the Service's regulatory responsibilities and review protocols. The Service has jurisdictional authority for the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the Endangered Species Act. The Service works with Federal agencies and non-Federal entities to help conserve federally-listed species and ensure that unauthorized take of listed species does not occur.

Domenic Rocco, DEP, Southeast Regional Office, presented an overview of the typical state authorizations that may be required for Pipeline Projects. For projects that are FERC-regulated, DEP requires a single State Water Quality Certification that certifies that the construction, operation and maintenance of the project complies with the applicable provisions of the Federal Clean Water Act (Section 401), the Commonwealth's water quality standards, and the criteria and conditions of the necessary DEP authorizations. Mr. Rocco's presentation included information regarding water obstruction and encroachment permits under Chapter 105, erosion and sediment control permits under Chapter 102 and wastewater discharge permits under Chapter 92a of DEP's regulations.

Doug McLearen, Pennsylvania Historical and Museum Commission, gave a presentation on the State Historic Preservation Office's role in review of gas pipelines and related activities. Every state has a historic preservation office (SHPO) and, in Pennsylvania, it is PHMC's Bureau for Historic Preservation. One of the office's mandated tasks is review of state and/or federally assisted or permitted projects for their effects on "historic properties" (archaeological sites or

above ground/historic built environment resources listed on or eligible for the National Register of Historic Places). SHPO reviews federally regulated projects under Section 106 of the National Historic Preservation Act and its implementing regulations.

Heather Smiles, PA Fish and Boat Commission (PFBC), presented an overview on the estimated 86,000 miles of stream miles in PA and the increased demand for pipelines to move natural gas and natural gas liquids, PFBC is actively involved in the review of proposed pipeline projects. It is staff review projects to insure that aquatic resources that live in all of our Commonwealth waters remain protected.

John Taucher, Energy Project Review Coordinator, Pennsylvania Game Commission (PGC), provided an overview of the PGC's involvement with pipeline permitting in Pennsylvania. The PGC utilizes the PNDI process for pipeline review to determine impacts for wild bird and mammals. The PGC's PNDI process focuses on state endangered, threatened, and species of concern. The PGC reviews projects to avoid, minimize, and if necessary mitigate for impacts to PGC's species. The PGC recommends early coordination and co-locating whenever possible as Best Management Practices (BMPs).

Dan Devlin, Bureau of Forestry Director, Pennsylvania Department of Conservation and Natural Resources (DCNR), presented an overview of DCNR's role with pipelines in Pennsylvania. DCNR coordinates the PNDI program for the state and provides information on these resources through planning and review tools.

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PERMITTING CLARITY

There is a statewide need for clarity in the permitting process and in the role that citizens, non-profits and government officials can play in that process. Officials in Chester County, with a population of half a million (averaging 665 persons per square mile) are as attentive to the increasing expansion of pipelines as are officials in Susquehanna County, with a population of 42,000 (averaging 53 persons per square mile).[vii]

Officials from both counties presented to the PITF on their roles in educating citizens on the multi-faceted permit review process for pipelines. Chester County Planning Commission[viii] explained that although the county has a limited role in providing input in the review process, the county's Pipeline Information Center is an important resource for government officials, residents and other stakeholders.

To explain the permitting process, the Chester County Pipeline Information Center website reads:

> The Federal Energy Regulatory Commission, or FERC, is an independent agency of the United States government that regulates the interstate transmission of electricity, natural gas, and oil. FERC also reviews proposals to build liquefied natural gas (LNG) terminals and interstate natural gas pipelines.
>
> Among its other powers FERC regulates the transmission and sale of natural gas for resale in interstate commerce; regulates the transportation of oil by pipeline in interstate commerce; and approves the siting and abandonment of interstate natural gas pipelines and storage facilities.
>
> In addition, the United States Department of Transportation (USDOT) also oversees the safety of pipelines, which are a form of transportation infrastructure. The Pipeline and Hazardous Material Safety Administration (PHMSA), acting through the Office of Pipeline Safety (OPS), administers the Department's national regulatory program to assure the safe transportation of natural gas, petroleum, and other hazardous materials by pipeline. OPS develops and administers regulations to assure safety in design, construction, testing, operation, maintenance, and emergency response of pipeline facilities.
>
> At the State level, the Public Utility Commission (PUC) is authorized by the General Assembly to adopt and enforce safety standards for pipeline facilities. The PUC also enforces federal safety standards as an agent for the OPS. These safety standards apply to the design, installation, operation, inspection, testing, construction, extension, replacement, and maintenance of pipeline facilities. The PUC may prescribe additional safety standards over and above federal standards, provided they are not in conflict. Pennsylvania, however, is one of two states that do not regulate the siting of intra-state transmission pipelines.

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In addition to PUC oversight, the Pennsylvania DEP has regulatory authority over any crossing of a wetland or waterway by a pipeline. Pipeline projects located within Delaware River Basin may be subject to regulatory review by the Delaware River Basin Commission (DRBC) when certain threshold established by the Administrative Manual -- Rules of Practice and Procedure are met.

Municipal governments (cities, boroughs and townships) are authorized by the General Assembly to enact zoning and subdivision regulations which may regulate the siting and environmental impact of pipeline-related surface facilities. Municipalities also have the regulatory responsibility for minimizing conflicts between pipelines and new development on adjacent lands.

Susquehanna County Conservation District [ix] presented a chart of the approval process, which elaborates on the state agencies that can be involved in the process.

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Anticipated Permits / Approvals

Permits, Licenses, Approvals, and Certificates Required for Construction, Operation, and Maintenance of the Constitution Pipeline Project	
Federal	
Permit/Approval	**Administering Agency**
Certificate of Public Convenience and Necessity	Federal Energy Regulatory Commission
PASPGP-4 CWA Section 404 Individual or Nationwide Permits (NY & Buffalo)	Army Corps of Engineers Baltimore District
	Army Corps of Engineers New York District
	Army Corps of Engineers Buffalo District
Consultation	USFWS Pennsylvania Field Office
	USFWS New York Field Office
Surface Water Withdrawal / Consumptive Use Permits	Susquehanna River Basin Commission
Pennsylvania State	
Permit/Approval	**Administering Agency**
CWA 401 Water Quality Certification	PADEP Northeast Regional Office Bureau of Watershed Management
Chapter 105 Water Obstruction and Encroachment Permits	
CWA Section 402 NPDES – Hydrostatic Test Water Discharge General Permit (PAG 10) or Individual Permit	PADEP Northeast Regional Office Bureau of Water Quality Protection
CWA Section 402 NPDES Chapter 102 Erosion and Sediment Control General Permit (ESCGP-1) for Construction Activities	PADEP Bureau of Watershed Management and Bureau of Oil and Gas Management
Submerged Land License Agreement	PADEP Bureau of Waterways Engineering
Highway Occupancy Permit	PennDOT
Clearance (Rare Species)	PA DCNR
Clearance (Rare Species)	PA Fish and Boat Commission
Clearance (Rare Species)	PA Game Commission
Blasting Permit	PA Fish and Boat Commission
Clearance (Cultural Resources)	PA Historic Museum Commission
Pennsylvania Local and County	
Permit/Approval	**Administering Agency**
Erosion & Sedimentation Control Plan Review	Susquehanna County Conservation Districts

WORKGROUP RECOMMENDATIONS

The 12 workgroups have provided the following 184 recommendations to the Task Force.

Agriculture

1. Educate Landowners on Pipeline Development Issues
2. Build a GIS Database of PA's Farms

Agriculture and Conservation and Natural Resources

1. Develop Best Management Practices Manual for Pipeline Development on Agricultural Operations

Conservation and Natural Resources

1. Communicate Pipeline Development Conservation Practices to the Public
2. Develop Public Access to Pipeline GIS Information
3. Use a Landscape Approach for Planning and Siting Right-of-Way Corridors
4. Give Special Consideration to Protected / Designated Lands in Pipeline Siting
5. Mitigate the Loss of Public Use of Public Lands Resulting from Pipeline Development
6. Avoid Geological Hazards During Planning
7. Implement Full-Time Environmental Inspections During Pipeline Construction
8. Monitor Water Quality During Construction
9. Require Post-Construction Monitoring for 5 Years
10. Tie Permitting Standards to the Duration of Impact
11. Implement a Mitigation Bank to Improve Water Quality
12. Reduce Forest Fragmentation in Pipeline Development
13. Promote Biodiversity in Pipeline Development
14. Develop Rare Species Work Windows to Avoid Impacts
15. Minimize Impacts to Riparian Areas at Stream Crossings
16. Promote Wildlife Habitat Opportunities Along Pipeline Corridors
17. Restore and Maintain a Boarder Zone in Forested Areas
18. Minimize Aesthetic Impacts in Pipeline Development
19. Minimize Recreational Impacts in Pipeline Development
20. Provide Recreational Opportunities in Pipeline Development
21. Reseed Right-of-Ways Using Native Plants
22. Use Pennsylvania-Sources Plant and Seed Vendors and Landscape Services
23. Require Performance-Based Metrics for Long Term Maintenance of Right-of-Ways
24. Prevent Invasive Plant Species Establishment
25. Finalize Functional Protocols for Impacts and Offsets
26. DEP Should Follow the 2008 Final Mitigation Rule for all Mitigation Sites

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County Government

1. Counties Should Partner in Implementation of Task Force Recommendations
2. Counties Should Include Pipelines Development in County Comprehensive Plans
3. Counties Should Make GIS Mapping Available to Operators and Require Them to Provide Their Mapping to Counties and Municipalities
4. Develop Training Opportunities for County Officials
5. Develop Tools to Educate the Public on Pipeline Development
6. Operators Should Engage in Timely Communications
7. Develop Advisory Standards for Pipeline Setback and Buffers
8. Amend Municipalities Planning Code to Empower County Comprehensive Plan
9. Require Shared Right-of-Ways
10. Empower GIS Mapping
11. Create a Commonwealth Library of Pipeline Information
12. Require Pipeline Abandonment Plans

Emergency Preparedness

1. Standardize Emergency Response Plans
2. Train Emergency Responders
3. Require Infrastructure Mapping
4. Coordinate Pipeline Mapping Plans
5. PUC Should Develop a Comprehensive List of Pipeline Classifications
6. Enhance Emergency Response Training for Responder Agencies
7. Create County/Regional Safety Task Forces
8. Provide Training to Local Emergency Responders
9. Assess Need for Additional Training for Local Responders
10. Establish Protocol for Emergency Movement of Heavy Equipment during Off-Hours
11. Assigning a 9-1-1 Address to Pipeline-Related Facilities
12. Authorize a Fee for Emergency Response to Pipeline Incidents

Environmental Protection

1. Establish Early of Partnerships and Coordination in Relationships with Regulatory Agencies
2. Establish Early Coordination with Local Non-Governmental Groups
3. Establish Early Coordination with Local Landowners and Lessors
4. Project Sponsors Should Review Pennsylvania Stormwater BMP Manual
5. Sponsors Should Review the Pennsylvania Erosion and Sediment Pollution Control Program Manual
6. Sponsors Should Request Pre-Application Meetings with Regulatory Agencies
7. Sponsors Should Perform Alternative Analysis to Avoid/Minimize Impacts
8. Develop Standard Water Quality Monitoring Practices
9. Develop An Advanced High-Quality Environmental Resources Planning Tool
10. Sponsors Should Use Landscape Level Planning
11. Minimize Water Withdrawals for Testing
12. Do Not Locate Pipelines Parallel to Streams Within its 100-Year Floodway
13. Employ Smart Timing of Construction
14. Assess Potential Subsurface Hazards in Planning

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15. Route Pipelines to Minimize Disturbance to Forest Interiors
16. Avoid Steep Slopes and High Erodible Soils
17. Share Rights-of-Ways
18. Identify Barrier to Sharing Rights-of-Ways
19. Establish Setbacks from Wetlands and Watercourses
20. Use Dry Seals for Centrifugal Compressors
21. Minimize Methane Emissions During Compressor State Shutdown Periods
22. Use Pump-Down Techniques Before Maintenance and Repair
23. Develop Plans for Construction, Operation, and Maintenance
24. Implement Directed Inspection and Maintenance Program for Compressor Stations
25. Implement Wetland Banking/Mitigation Measures
26. Use Antidegredation Best Available Combination of Technologies to Protect EV and HQ Waters
27. Avoid Dams and Reservoirs
28. Avoid Water and/or Wastewater Discharge
29. Develop Plans for No Net Loss of Forests in Headwater Watersheds
30. Develop Plans for No Net Loss of Forested Riparian Buffers
31. Develop Plans for No Net Loss of Wetlands
32. Study Long-Term Impacts of Pipeline Infrastructure on Water Resources and Sensitive Landscape
33. Minimize Methane Emissions
34. Minimize Impacts of Stream Crossings
35. Conduct Research to Improve Revegetation BMPs
36. Require ShutOff Valves for Liquid Product Pipelines
37. Use Dust Suppression Controls Near Water Resources
38. Test Efficacy of Silt Fencing
39. Test Soils in Acid Deposition Impaired Watersheds to Identify Need for Additional Liming
40. Sponsors Should Review the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Tool
41. Develop Construction Sequencing Plan
42. Stockpile Topsoil During Construction for Use in Restoration
43. Soften Forest/Right-of-Ways Edges and Promote Canopy Closure
44. Create Onsite Habitat
45. Prevent Invasive Species from Entering Sites
46. Ensure Ecologically Sensitive Revegetation of Right-of-Ways
47. Conduct Quantitatively Site Monitoring
48. Conduct Regular Site Maintenance
49. Properly Use and Maintain Pipeline Components
50. Implement Leak Detection and Repair for all Above-Ground Components of Pipeline Infrastructure
51. Clarify Remediation of Spills Under Shale Regulation
52. Establish Forest Mitigation Program
53. Implement Electronic Permit Submissions for Chapters 102 and 105
54. Establish Electronic Payment for Chapters 102 and 105 Permit Fees
55. Evaluate Need for Hard Copies of Chapter 102 and 105 Permit Submissions

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56. Evaluate Erosion and Sediment Control General Permit (ESCGP-2) Expedited Review
57. Ensure Adequate Agency Staffing for Reviewing Pipeline Infrastructure Projects
58. Evaluate DEP Retention and Attrition of Staff and Succession Planning
59. Evaluate the Effectiveness of the Permit Decision Guarantee Policy
60. Evaluate the Permit Decision Guarantee Priority Status Hierarchy
61. Increase DEP Staff Training
62. Eliminate Duplicate Questions in Erosion and Sediment Control General Permit (ESCGP-2) Notice of Intent (NOI)
63. Create Pipeline Erosion and Sediment Control Manual
64. Consider Limited Permit Review Assistance Using Qualified Contractors
65. Convene Annual Regulatory Agency Meetings
66. Re-Assess and Update Standing Memoranda of Understanding (MOUs) between State and Federal Agencies
67. Incorporate Cumulative Impacts into Applications and Review Process
68. Conduct Joint Agency Coordination Meetings During Pre-Application and Planning
69. Assess Oil and Gas Programs Chapter 102 Training

Historical/Cultural/Tribal

1. Improve Communications with Landowners
2. Consult with Federally Recognized Tribes on Section 106-Related Projects
3. Consult with Citizens' Groups, Including Heritage and Historical Organizations and Non-Federally Recognized (NFR) Tribes for Oil and Gas Development
4. Implement Best Practices for Upstream and Midstream Oil and Gas Development that Fall Outside of USACE Permit Areas
5. Conduct Early Outreach with Affected Communities
6. Conduct County-Based Siting and Mitigation Research

Local Government

1. Communicate Early and Often with Local Government Officials
2. Minimize Impact on Local Roads
3. Allow Local Regulation for Surface Facilities

Natural Gas End Use

1. Create A State Level Permit Coordinator
2. Create Regional Energy Corridors and Energy Action Teams
3. Create Energy Opportunity Zones
4. Expand Distribution System Improvement Charge (DSIC), Act 11 of 2012
5. Develop Municipal Guidelines for Natural Gas Distribution Lines

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Pipeline Safety and Integrity

1. Require Leak Detection Survey Schedules
2. Require Leak Repair Schedules
3. Establish Publicly Available Pipeline Inspection Information
4. Require A Cathodic Protection Program
5. Require An Integrity Management Program (IMP) for Gathering Pipelines
6. Authorize PA Public Utility Commission (PUC) Regulation of Non-Jurisdictional Pipelines
7. Require Best Practices and Standards for Production Lines Located Beyond the Well Pad and Gas Gathering Lines in Class 1 Locations
8. Establish Mapping/GIS for Emergency Response
9. Designate PA1Call As Enforcement Agency for Underground Utility Line Protection Law
10. Enhance Public Awareness via Mapping/GIS
11. Create A Public Education Program on Gathering Systems
12. Enhance Public Awareness of Pipeline Location
13. Develop Public Education Program for Emergencies

Public Participation

1. Establish Statewide Pipeline Information Resource Center
2. Adopt Guidelines for Public Participation
3. Amend General Information Form to Require Information on Public Participation
4. Form Pipeline Advisory Committee
5. Require Publication of Intent to Apply for DEP Permits Association with Pipeline Development
6. Issue Annual Report Implementations on the PITF Recommendations

Siting and Routing

1. Utilize Planning Process Appropriate for the Scale of the Pipeline Project
2. Create an Inter-Agency Coordinating Committee to Resolve Conflicting Construction Requirements
3. Create Statewide Technical Review Committee Within DEP for Multi-Region Pipeline Applications
4. Create a Taskforce of Affected Stakeholders to Study the Creation of New Regulatory Entity, or Empower Existing Regulatory Entity to Review and Approve the Siting and Routing of Intrastate Gas Transmission Lines
5. Create DEP Plans and Procedures Design Manual for Pipeline Construction
6. Create Third Party Consultant Staffing at DEP
7. Expand PA1Call for All Classes of Pipelines
8. Pipeline Developers Should Engage with Private and Governmental Stakeholders and Educate Landowners
9. Invest in Digital Infrastructure to Improve Data Availability

Draft

Workforce and Economic Development

Workforce Development

1. Commission Workforce Assessment and Economic Development Impact Study
2. Enhance STEM Education
3. Promote Apprenticeship and On-the-Job Training
4. Attract Military Veterans to the Energy Workforce
5. Conduct a State Employee Workforce Audit to Identify Training and Other Needs of Pertinent State Agencies
6. Enhance Workforce Training

Economic Development

1. Develop a Pipeline Map
2. Coordinate Project Management for Projects Using Natural Gas in PA
3. Create Last Mile Funding
4. Expand Distribution System Improvement Charge (DSIC) to Cover Pipeline Payback Period Extension, Advertising Cost
5. Encourage Natural Gas Use in Ports
6. Develop Targeted Investment, Business Attraction Effects and Regional Energy Hubs
7. Collaborate to Promote Downstream Shale Manufacturing Opportunity
8. Encourage Virtual Pipeline (Trucking) Delivery Systems
9. Allow Creation of Natural Gas Municipal Authorities
10. Compile Funding and Resource Guidebook
11. Support Natural Gas for Compliance with Pennsylvania's Clean Power Plan (CPP)

For Other Workgroups

1. Assess Requirement of Consulting Services for Permitting
2. Ensure Pipeline Permit Consistency
3. Reform Application of the Pennsylvania Natural Diversity Index (PNDI)

Draft

Agriculture Workgroup Recommendation #1

Educate Landowners on Pipeline Development Issues

Full recommendation:
Throughout the process of the Agriculture workgroup's discussions and field visits, when the question was asked how can landowners – farmers, specifically, in our conversations – minimize the impact to themselves and their operations, the answer was consistent: the terms and expectations need to be defined clearly in the right-of-way lease agreement between pipeline developers and landowners. Issues such as topsoil handling, compaction, compensation for crop damages, biosecurity measures, etc. can all be addressed to some extent by negotiating these protections into the easement agreement.

Landowners may enter easement lease negotiations from a disadvantage position, however, as they are likely to be unfamiliar with the process, uncertain of what they are permitted to request in the agreement, or where to go for help and guidance. With that being the case, it is imperative that farmers and landowners have access to training and other educational resources in order for them to be most effective in negotiating pipeline easements with the best possible terms for their operation.

Several agricultural agencies and organizations in Pennsylvania have been educating landowners about pipeline easements on their land. Penn State Extension has developed an educational workshop for farmers and other landowners involved in pipeline easement negotiations. The program was initiated in 2009 and has since been held at 30 locations throughout Pennsylvania reaching nearly 3,000 participants to date. Other agricultural organizations such as the Pennsylvania Farm Bureau, PennAg Industries, county conservation districts, and the Pennsylvania State Grange have been active in educating their members and stakeholders about negotiating rights-of-way and navigating the eminent domain process. The federal government also has developed materials that it disseminates through agencies such as the Federal Energy Regulatory Commission (FERC).

Pennsylvania should develop resources that can help to educate farmers and landowners and answer the most commonly asked questions. The materials should be available in both print and electronic forms, and this information should reflect and report the different resources available in different geographic regions of the commonwealth.

Relevant agencies:
Department of Agriculture (Ag)
Department of Environmental Protection (DEP)
Public Utility Commission (PUC)
State Conservation Commission (SCC)
U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS)

Draft

Justification:
While a number of different constituency groups and membership-based organizations offer resources to educate farmers and landowners on how to approach and manage easement lease negotiations, not everyone has access to this information. The commonwealth can help to fill this gap by serving as a respected, trusted and impartial resource for information -- a space that few others can occupy.

Further, given its extensive online presence, as well as its physical presence in every region of the state (via regional offices of various state agencies, including the departments of Agriculture and Environmental Protection), the commonwealth has an effective means of distributing this information, making it readily available to those seeking assistance.

Actions that would be required to achieve recommendation:
Agencies of the commonwealth should collaborate to develop clear answers to the most commonly asked questions about pipeline development projects. This information should be compiled into one frequently asked questions (FAQ) document that will be made available in brochure form and online.

Additionally, the state should work with various associations representing professional in the fields of law, accounting and finance, among others, to compile a list of experts who are available to work with landowners seeking guidance and assistance. This information should be gathered for every county in the commonwealth so as to provide residents of every area of the state with nearby and conveniently accessed support.

Beyond providing written materials, the above referenced agencies and other interested organizations should be encouraged to provide - or continue providing - training and materials for farmers and landowners involved in pipeline easement negotiations. Many of these organizations hold annual meetings or other events where the state's landowner education materials could be presented or made available to attendees.

Looking ahead, as the current massive pipeline infrastructure buildout occurring in Pennsylvania continues to unfold, the Commonwealth should investigate ways to expand and enhance these educational efforts for farmers and other landowners. Additional resources or funding may be needed to ensure all farmers and landowners throughout the state have access to pipeline education opportunities.

Challenges to achieving recommendation:
The only obstacle to overcome in implementing this recommendation is the ability of relevant agencies to coordinate activities and share information to arrive at mutually agreed upon guidance to landowners. This is not expected to be a major challenge.

Additional supporting material:
The following is a sample of materials that have been developed, to date, by organizations in Pennsylvania, as well as samples from FERC and other neighboring states. These materials can serve as a reference and model for the types of information resources recommended here.

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- *Negotiating Pipeline Rights of Way in Pennsylvania*, Penn State Extension, August 2015 http://extension.psu.edu/natural-resources/natural-gas/issues/leases/negotiating-pipeline-rights-of-way-in-pennsylvania/extension_publication_file
- *Understanding Natural Gas Compressor Stations*, Penn State Extension, March 2015 http://extension.psu.edu/publications/ee0154
- *An Interstate Natural Gas Facility on My Land? What do I Need to Know?*, Federal Energy Regulatory Commission, August 2015 http://www.ferc.gov/resources/guides/gas/gas.pdf
- *Damage Prevention Guide for Excavators, Homeowners and Farmers*, WVU Extension Service, 2015 http://anr.ext.wvu.edu/r/download/216589
- *Oil and Gas Pipeline Easement Checklist*, Ohio State University Extension, 2012 http://serc.osu.edu/sites/d6-serc.web/files/uploads/Pipeline%20Easement%20Check%20List%20Final%20Feb%202013_0.pdf

Issues to address (such as cost, environmental impacts):
There would be nominal costs to develop and compile content for the recommended materials. Any significant cost would likely be associated with the printing and distribution of those materials that are offered in hard copy.

The commonwealth will also need to develop a system by which the resources become "living" documents, constantly evolving to stay current and relevant to those.

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Agriculture Workgroup Recommendation #2

Build a GIS Database of PA's Farms

Full recommendation:
Pennsylvania is home to nearly 60,000 farms. They can be found in every county and cover more than 7.7 million acres, or more than a quarter of the state's land area. The number and geographic distribution of farms in the commonwealth have made the intersection of agriculture with infrastructure and energy development a regular occurrence that is sure to continue. In some cases, understanding where those industries intersect can be difficult to determine as property boundaries may be uncertain, particularly with older farms that have not been surveyed in years, decades or longer.

Pennsylvania would benefit from a comprehensive GIS database of existing farms. Not only could this aid in understanding the potential impacts of natural gas pipelines on production agriculture, it could also help local and state governments with land planning, preservation and conservation efforts.

A full GIS database would also benefit the more-than-4,800 farms for which the commonwealth has purchased easement rights through the farmland preservation program. Over the past 25 years, ownership of approximately 1,000 of the state's preserved farms has changed hands. Records of these transactions largely exist in paper form -- if they exist at all. It is anticipated that over half of all preserved farms will change hands within the next decade. A GIS database will allow the commonwealth to track the return to citizens on the $1.3 billion that has been invested to protect this quality farmland, and it will assure that the Department of Agriculture and 57 participating county programs will not lose sight of where farms are located. In addition to showing where preserved farms are located, a statewide GIS will provide critical information such as current owner, type of farming operation, date of last inspection for compliance with the deed of easement and the types of best management practices installed to assure soil and water conservation. Eventually, the system will be used to also track farms enrolled in the Agricultural Security Area or Clean and Green preferential assessment program.

There is also a need to map the nearly 2,000 applicant farms that remain on backlog lists. An overlay of applicant farms may indicate areas where resource concerns such as wetlands, threatened and endangered species and forested buffers overlap. Partners in other state agencies and non-profit organizations may potentially place easements on certain areas of the farm, further leveraging funds for farmland preservation and accomplishing mutual goals.

Relevant agencies:
Ag
DEP
USDA - NRCS
Department of Conservation and Natural Resources (DCNR)
Department of Community and Economic Development (DCED)
Pennsylvania Emergency Management Agency (PEMA)

Draft

Justification:
The mission of the Agriculture workgroup of the Governor's Pipeline Infrastructure Task Force (PITF) is to make recommendations that help with "avoiding, minimizing, and mitigating the impacts of pipeline infrastructure development on the agricultural sector." In order to fulfill that mission, the commonwealth must have a robust repository of data on existing farms and agricultural operations, including a statewide GIS layer. Without such extensive information, the commonwealth cannot adequately identify potential impacts before they occur from a multitude of industries, including natural gas infrastructure build out.

Aside from the need to avoid or minimize impacts from heavy industries, a complete database of Pennsylvania farms with extensive GIS layers of information can help to protect the future of farming in the state. Not only can such a resource help to preserve the public's substantial investment to protect prime farmland from development over the last 25 years (as mentioned earlier), a statewide GIS database of farms offers other tremendous advantages to Pennsylvania.

One of the foremost such advantages is the opportunity to strengthen the state's response capabilities to agricultural emergencies, such as matter s threatening animal or public health or food safety. The present threat of Highly Pathogenic Avian Influenza is one such example. It requires that the state possess the ability to identify farms affected by this devastating foreign animal disease and those in close proximity that may be susceptible to the virus. Being able to identify the location, owners, and type of operations – and being able to obtain that information promptly – can be critical as officials attempt to contain and eradicate the disease. When hours count, relying on external agencies whose GIS information is not collected within agricultural interests in mind is a less-than-ideal situation.

Actions that would be required to achieve recommendation:
First, the state must expand its GIS capabilities. Years of underinvestment in the state's technology infrastructure have left deficiencies that preclude the commonwealth from operating at maximum efficiency. And given constraints on personnel complement, it is unlikely additional resources will be available to put on the ground to collect the data necessary to build a statewide GIS database of farms. As such, the state must collaborate with other stakeholders, such as federal, county and local governments, as well as private industry, to acquire and compile data that already exists. The USDA - NRCS, for example, can provide shapefiles of existing federally preserved easements across Pennsylvania. Meeting this goal presents an ideal opportunity for a public-private partnership.

Challenges to achieving recommendation:
PA Ag currently lacks personnel with extensive training on GIS technology, and thus, it has relied on employees of its sister agencies for assistance as their workload allows. Such limited human resources put the department and the prospects for implementing this recommendation at the mercy of others' timetables.

Additionally, there may be objections to sharing existing GIS data on farms, such as concerns over individual privacy or over confidentiality agreements that prevent the owners of data from sharing it with third parties.

Additional supporting material:
Maryland offers a comprehensive and user-friendly online mapping tool, with layers specific to certain industries. The resource, which is publicly accessible, offers a number of different modules based on different issues areas. For instance, the tool identifies preserved farms and areas targeted for preservation with priorities placed on these regions. It also offers separate layers that indicate geographic areas that have been targeted for economic or environmental revitalization, different types of stormwater best management practices, and it reports the health of waterways throughout the state.

The mapping tool can be found by visiting
http://geodata.md.gov/sggatlas/index.html?sggWebmap=c2eddd67859248288f8cb15b63dc283d&sggTheme=agPrint&sggdata=%5B%225s4V100%22%2C%225hsV100%22%2C%22qa6V100%22%2C%225w5V100%22%2C%22ovjV100%22%2C%22aycV100%22%5D&extentBBox=-8919591.378794406,4466077.5958568575,-8240219.071395792,4920419.291983922&extentSR=102100

Issues to address (such as cost, environmental impacts):
The Commonwealth, specifically, PA Ag, would incur some cost to establish its GIS capabilities. This would include license fees for GIS software and personnel costs associated with hiring a new position or training an existing employee on this technology. Additionally, there may be costs associated in obtaining or collecting the information to feed the GIS database. There could also be costs associated with maintaining the database. These costs could, however, be minimized by engaging in partnerships with other private- and public-sector entities that may be able to share existing data sources.

Draft

Jointly Developed

Agriculture and Conservation and Natural Resources Workgroup Recommendation

Develop Best Management Practices Manual for Pipeline Development on Agricultural Operations

Full recommendation:
The Task Force's Agriculture and Conservation and Natural Resources Workgroups are tasked with developing best practices related to avoiding, minimizing, and mitigating the impacts of pipeline infrastructure development. During the course of the task force's work, the Agriculture workgroup visited several farms, talked to farmers, and conducted research to learn how pipelines can affect the actual working operations at Ag operations. Similarly, the Conservation and Natural Resources workgroup has given extensive consideration to matters of pipeline developers protecting soil quality.

During landowner/pipeline company easement lease negotiations, landowners need to be strong self-advocates to ensure the unique challenges farm operators face are not made more difficult by the construction of pipelines through their farms. While farmers are keenly aware of their own operations, they need to make sure the pipeline operators are fully aware of those operational considerations, as well. It is recommended that a best management practice (BMPs) manual be developed specifically targeted towards agricultural and pipeline impact. This manual could be used as a guide for what a lease should contain to protect the farm operations to the maximum extent possible.

The following BMPs should apply to the pipeline company obtaining the right of way, as well as any construction contractors or subcontractors engaged in the construction process by the pipeline company or its agents. Specifically, this submission – developed jointly by the Agriculture and Conservation and Natural Resources workgroups – puts forth the following recommendations to be included, among others potentially, in the manual:

- Pipeline companies will utilize topsoil segregation techniques on agricultural lands in accordance with Section IV.B of the FERC Upland Erosion Control Revegetation and Maintenance Plan, dated May 2013.
- Pipeline companies will remove and replace all topsoil on the property. If a pipeline company elects to not remove all topsoil, a minimum of 12 inches shall be removed, and the company will pay for an agricultural consultant, to be chosen by the landowner, to conduct soil bore testing to determine the depth of topsoil that will not be removed. The company will compensate any affected landowner for topsoil not removed at its fair market value.
- During the restoration phase, pipeline companies will decompact all soils within the entire Right of Way by deep tilling the underlying subsoil prior to replacement of the topsoil and then deep tilling the entirety of both the temporary work space and permanent Right of Way following topsoil replacement, with additional tilling if any vehicles or equipment further compact the soil following deep tilling of the topsoil.
- Pipeline companies will reimburse affected landowners for any and all damages incurred

as a result of the negligence, recklessness or willful misconduct of the pipeline company or any agent, employee, contractor or subcontractor, including but not limited to, damages to livestock, surface water, groundwater, or the release of petroleum, regulated substances, or hazardous substances by the pipeline company, or any agent, employee, contractor, or subcontractor thereof during the course of the construction of the pipeline, facilities or improvements authorized under the Right of Way.

- Companies agree to bury the pipeline a minimum of 48" from the top of the pipeline to the soil surface (after construction and settlement) or at such a depth as may be required by any applicable local, state or federal regulation, whichever is greater, so that the pipeline will not interfere with the cultivation of crops (not trees) on the land.
- Companies will pay for any physical damages to fences, growing crops and timber which may arise from laying, constructing, altering, repairing, removing and replacing a pipeline. The term "timber" is defined as trees or the wood grown for commercial sale.
- No above ground appurtenances (other than test posts, vents or location markers) shall be constructed in the easement area.
- All access to other land via lands of the landowner shall be via the Right of Way and temporary work space. No other areas of landowner's property shall be used for access to other lands without the prior written approval of landowner.
- Pipeline companies shall give landowners a minimum of 30 days written notice prior to the commencement of construction activities on landowner's property.
- Pipeline companies agree to avoid construction on Grantor's property on Sundays unless necessary to respond to an emergency, such as a spill response, bank stabilization following a storm event that caused failure of stormwater BMPs, etc. The term "emergency" shall not include a pipeline company or any contractor thereof falling behind schedule in the construction of this pipeline, and a pipeline company shall only traverse landowner's property on a Sunday to perform work on adjacent lands not owned by landowner in the event of an emergency, as defined above.

Relevant agencies:
DEP
Ag
SCC
USDA - NRCS
Pennsylvania Association of Conservation Districts (PACD)

Justification:
There are many unique operations that occur on farms. Placing a pipeline though a working farm has unique challenges that should be addressed in a lease. Leases and plans for pipeline projects on agricultural-related land should include identification of unique features and operations and describe how those features and operations will be avoided, managed or mitigated/restored. A best practice manual will provide farmers and pipeline operators with a guide during lease negotiations. It can also be used as a guide for pipeline companies during the permitting process.

Actions that would be required to achieve recommendation:
Agencies of the Commonwealth should collaborate to develop a best management practice manual specifically targeted towards agricultural and pipeline impacts to agricultural operations.

Additionally, the state should work with various associations and agencies to compile a list or resources for landowners seeking guidance and assistance. This information should be gathered for every county in the commonwealth so as to provide residents of every area of the state with nearby and conveniently accessed support.

Beyond providing written materials, the above referenced agencies and other interested organizations should be encouraged to provide – or continue providing -- training and materials for farmers and landowners involved in pipeline easement negotiations. Many of these organizations hold annual meetings or other events where the state's landowner education materials could be presented or made available to attendees.

Looking ahead, as the current massive pipeline infrastructure buildout occurring in Pennsylvania continues to unfold, the Commonwealth should investigate ways to expand and enhance these educational efforts for farmers and other landowners. Additional resources or funding may be needed to ensure all farmers and landowners throughout the state have access to pipeline education opportunities.

Challenges to achieving recommendation:
Challenges will be to bring the various agencies together. Different agencies have different skill sets and will need to work together to develop a manual.

Additional supporting material:
DEP's Bureau of Waterways Engineering and Wetlands and the Bureau of Conservation and Restoration have developed several manuals that could be used to develop a stand alone BMP manual for pipelines in Agricultural lands. In addition the SCC could be brought in to add sections on nutrient management. Other states, such as New York, have developed manuals specifically for pipelines in agricultural lands. The Commonwealth should consult those manuals for reference in developing one specific to Pennsylvania.

Issues to address (such as cost, environmental impacts):
Costs will primarily be time for staff to develop the manuals and cost for printing. Also, there may be needs to have training sessions.

Draft

Conservation & Natural Resources Workgroup

Introduction

The Conservation & Natural Resources Workgroup was tasked with developing best practices and recommendations related to avoiding, minimizing, and mitigating the impacts of pipeline infrastructure development on, but not limited to, wildlife and plant species, habitats, aesthetics, and recreational values. Comprehensively the practices and recommendations within this document work together to minimize natural, aesthetic and recreational resource impacts.

As with all issues within the Pipeline Infrastructure Task Force (PITF) workgroups, it is important to understand the need to balance the competing societal and natural resource needs associated with pipelines. This is where the mantra of Avoid, Minimize, Mitigate and Monitor/Manage plays an important role in balancing these needs. Avoid the most sensitive/important areas. Minimize the footprint/impact to the greatest extent possible. Mitigate the impacts that do occur. And monitor and manage, for the long-term, the project area once the pipeline is implemented.

Many of the practices or recommendations below are a change from current practices and may be perceived to be more costly or cumbersome. However, the workgroup believes that many recommendations and practices may actually provide a decrease in costs and provide an increase in efficiency. It would be beneficial to plan and develop pilot projects to track the cost benefit analysis of implementing conservation-based recommended practices in pipeline development. These pilot projects may allay the concerns associated with costs.

Proper planning is key in natural resource conservation. Pennsylvania lacks statewide planning and oversight regarding right-of-way (ROW) siting. Independently, we are all very good at reviewing, critiquing and modifying segments of proposals. However, there is a lack of comprehensive planning occurring at the statewide level. From a statewide perspective, we need to ensure the backbone of this infrastructure is built right the first time and that it accommodates anticipated need while also considering distribution to end consumers. Collectively, the Task Force should address this concern.

The following recommendations and practices are intended to minimize impacts to natural resources and provide a benefit to conservation. Not all recommendations will apply in all situations. It will depend on the position of the pipeline on the landscape and/or the objectives of the landowner(s) or manager(s).

The Workgroup made no attempt to assign or apply the recommendations to the various categories of pipelines; gathering lines (including midstream lines), transmission lines, or distribution lines. Some Best Management Practices (BMPs)/Recommendations may be more applicable to gathering lines, others to transmission lines, and still others to distribution lines. However, most of the BMPs/Recommendations could be applied to all pipeline categories.

Several of the recommendations below may overlap with other Committees, including Siting and Routing, Environmental Protection or Pipeline Safety and Integrity. However, our Committee

did coordinate with the Agriculture committee and have developed a shared recommendation. It will be beneficial to reconcile any differences in overlapping recommendations from the Committees.

Draft

Conservation & Natural Resources Recommendation #1

Communicate Pipeline Development Conservation Practices to the Public

Full recommendation:
Thoughtful communication should serve to inform the public about the work being done to safeguard the environment and limit impacts of pipeline infrastructure.

Relevant agencies:
Department of Conservation and Natural Resources (DCNR)
Department of Environmental Protection (DEP)
Pennsylvania Game Commission (PGC)
Pennsylvania Fish and Boat Commission (PFBC)
Various stakeholders and partners

Justification:
Many are currently unaware of conservation opportunities or measures put in place to minimize environmental impacts and provide conservation benefits during pipeline placement and construction. Many pipeline rights-of-way are proposed within areas of high recreational use and scenic beauty or may not use the most up-to-date conservation practices to restore rights-of-ways.

Actions that would be required to achieve recommendation:

1. Develop an online central repository that maintains information on pipelines in Pennsylvania. This website could hold information about current pipelines, proposed pipelines, conservation practices to minimize impacts, information for private landowners on things like plantings, invasive plant management or wildlife habitat creation. Links to the many applicable agency and conservation partner web pages could be included to provide access to implemented practices and conservation information.
2. Utilize the various media outlets to help advertise access to new and existing information and the online website. The more informed the public, consultants, companies and interest groups are, the more effective pipeline planning and management could be.
3. Consider appropriate signage measures and interpretive panels when construction occurs in or near areas of heavy visitation.
4. Communicate potential impacts from construction activities and proposed conservation practices to local municipalities or stakeholder groups to provide open communication and discussion as needed.

Challenges to achieving recommendation:

1. Time constraints on staff.
2. Developing a centralized point of contact and method for providing information to the public and pipeline industry.

Draft

Additional supporting material:
DCNR Bureau of Forestry (BOF) Oil and Gas Guidelines, Statewide Comprehensive Outdoor Recreation Plan (SCORP), State Forest Resource Management Plan
Issues to address:

1. Identify additional key messages that should be communicated.
2. Identify educational opportunities for pipeline operators to consider.

Draft

Conservation & Natural Resources Recommendation #2

Develop Public Access to Pipeline GIS Information

Full recommendation:
The GIS data for pipeline locations is essential to the public, as well as governmental activities in understanding current and proposed pipeline locations, as well as for planning purposes. It should be required of all pipeline companies that they make public digital GIS files delineating pipeline locations.

Justification:
In the past it has been asserted that this information constitutes a security risk. However, prior to 2001 Pipelines were routinely found on U.S. Geological Survey (USGS) topographic maps, still in the public domain. The pipelines have not moved since publication and the maps are readily available online. Likewise a 1984 publication by DCNR Bureau of Topographic and Geologic Survey (BTGS) shows all major pipelines in the state and is readily available on line. The pipeline paths are readily seen in aerial imagery which is available on Google Maps or other public venues. Finally, pipelines are marked at road crossings with brightly painted signs noting their location.

This would save the government resources in recreating such a map and make it easier for the public to know where a pipeline may be located in their community.

Draft

Conservation & Natural Resources Recommendation #3

Use a Landscape Approach for Planning and Siting Rights-of-Way Corridors

Full recommendation:
A landscape approach is necessary to consider, plan and evaluate potential routes for rights-of-way corridors. The location of rights-of-way should be compatible with current land use, strive to minimize adverse impacts, avoid duplication of infrastructure and accommodate operational needs. Discrete planning efforts must also extend to construction and infrastructure placement within the corridor.

Relevant agencies:
DCNR
PGC
PFBC
County and Municipal Governments
private landowners

Justification:
Comprehensive landscape planning considers land management techniques and site specific needs that promote and balance social, economic and environmental objectives amongst competing land uses.

Actions that would be required to achieve recommendation:

- Identify areas that are incompatible with ROW development and preclude development
- Identify areas that don't preclude development, but require additional consideration due to significant ecological, cultural and recreational resources.
- Establish a clear need for the ROW and investigate alternative routes. The location of the preferred route should be justified.
- Work within the constraints of existing corridors to maximize capacity. "Lift and lay" replacement of pipelines that increase capacity are preferred over the addition of a new line.
- Employ long term planning and consider infrastructure capacity that accommodates current and future needs.
- Avoid the creation of new corridors when opportunities exist for incorporating ROWs into existing disturbances.
- Minimize fragmentation by co-locating infrastructure with existing disturbances such as roads and other ROW corridors.
- Minimize permanent and temporary ROW widths and maximize infrastructure capacity within the corridor to the extent that workability and safety are not jeopardized.
- Consider alternative construction techniques that minimize the construction footprint (i.e. trenchers).
- Utilize roads or adjacent ROWs for temporary workspace in order to reduce the construction footprint.
- Consider burying pipelines within the road footprint when maintenance needs and safety can be maintained.

Draft

- Consider pipeline materials with coatings that are consistent with the re-establishment of vegetative habitat, tolerant of woody roots and maintain pipeline integrity.
- Consider pipeline materials that promote the minimization of necessary safety offsets (i.e. Flexsteel versus steel).
- Encourage companies with adjacent ROW interests to work cooperatively in the use, management and siting of infrastructure.
- Encourage proposals that accommodate the needs of multiple operators and avoid duplication of infrastructure on the landscape.
- Bury pipelines deep enough to accommodate anticipated surface activities.
- Work within topographical constraints to minimize aesthetic impacts. Use the lay of the land to 'hide' infrastructure. Use 'dog-legs' to break up the visual effects of long linear corridors.
- Retain vegetative cover associated with riparian and wetlands crossing by using boring or directional drilling techniques.
- Consider potential recreation opportunities and promote potential benefits during pipeline planning.
- Address soil productivity during construction and mitigate compaction upon completion.

Challenges to achieving recommendation:

- Resistance of operators to cooperate with competing interests in ROW planning and siting to minimize footprints, manage corridors in a consistent manner and eliminate duplication of infrastructure.
- Defining pipeline offsets that promote safety, workability and pipeline integrity
- Limitations due to operability of equipment and topography.
- Diameter/Capacity limitations with pipeline materials such as Flexsteel.

Additional supporting material:
BOF Oil and Gas Guidelines, FERC Upland Erosion Control, Revegetation and Maintenance Plan, and FERC Wetland and Waterbody Construction and Mitigation Procedures.

Issues to address (such as cost, environmental impacts):

- Current FERC regulations mandate companies build to subscribed capacities versus anticipated capacities. This approach may lead to the development of additional corridors.
- FERC looping projects currently evaluate the merits of individual offset segments instead of the cumulative impact of the entire corridor. This allows companies to submit limited proposals and request additional segments as needed, which eliminates the opportunity to evaluate the entire corridor using a landscape approach.
- Co-location of infrastructure is strongly encouraged, yet one of the long term ramifications of this approach is ever increasing ROW corridors widths that may be socially and environmentally unacceptable.

Draft

Conservation & Natural Resources Recommendation #4

Give Special Consideration to Protected / Designated Lands in Pipeline Siting

Full Recommendation:
Many lands within the Commonwealth may have achieved a special designation and some lands have a certain level of protection afforded to them. These lands could be public lands such as State Parks, Forests or Game lands; County or local parks, lands with conservation easements, or certified lands such as Pennsylvania Certified Organic or American Tree Farm certification. These lands have gone through a rigorous process to obtain and maintain those protected statuses. Therefore, prior to siting infrastructure on these lands, their certification or protected status should be considered during the siting process.

Protected lands should be avoided if possible or special consideration should be applied based on the land's certification requirements. However, if avoidance is not possible the landowner should be compensated for the loss of value associated with the certification. BMPs should be implemented in accordance with the protected or certification standards of those lands.

Actions that would be required to achieve this recommendation:

- These lands can best be protected or managed if the pipeline companies are aware of the presence and requirements. A centralized repository of the location of protected lands and also the types of protections or requirements afforded to those lands would be beneficial to aid companies in planning and increase the ability to consider impacts to these lands.

- Pipeline companies should be required to consider lands with protected statuses and avoid or limit impacting their certification or protected status.

- If avoidance is not possible, landowners should be compensated for any losses afforded to them through the development of the pipeline right-of-way.

- If avoidance is not possible, BMPs should be implemented based on the needs and standards of the land's certification or protection.

- Construction, operation and maintenance of pipelines on third party certified lands (i.e. Forest Stewardship Council certification, Pennsylvania Certified Organic, etc) should require a special plan, following guidelines and bmp's applicable and in accordance with all conservation, farmland, forest, or wildlife management plans and certification requirements in effect on those lands.

Challenges to achieving this recommendation:
Education concerning the concept and the certification of the land

Issues to be addressed:
The cost should be borne by the proponent of the proposal as should all costs of the project. The use of mitigation funds should be established in general terms in the permit issuing the right of

way. Project proponents should receive due credit for their efforts to offset any impacts to the environment form the competing but legitimate societal needs of energy and conservation.

Draft

Conservation & Natural Resources Recommendation #5

Mitigate the Loss of Public Use of Public Lands Resulting from Pipeline Development

Full Recommendation:
Agencies involved in regulation of and oversight of infrastructure that affects public lands need to be constantly conscious of the ultimate ownership of those lands by the public. The wide range of impacts that are addressed in the: avoid, minimize and mitigate strategy, that regulatory agencies normally follow in the permitting process will account for mitigation required to address direct impacts to specific resources. These normal analyses can be completely accurate regarding the numbers of acres of forest or wetland that are impacted, and the quality and quantity of mitigation the permit requires is most often very accurate and appropriate. However, this strategy often misses the most important impact to publicly owned lands and waters. The impacts to the citizens from irretrievable losses in perpetuity resulting directly from the development of infrastructure on public lands and waters need to be accounted for in the mitigation strategy. The fact that no one will ever use a particular trail, area, or enjoy a specific visitor experience in the same manner as we use it today because of permanent changes to the landscape is a loss to every individual who will never have that experience. There are methods to account for this loss that have been in use successfully for decades. The concept of Lost Use is commonly used to determine damages in oil and hazardous material spills, for example, is an accepted method of capturing the impact on the public. Recently it was used as a critical element to determine mitigation for the Susquehanna to Roseland (S-R) transmission line project. While the mitigation for elements such as wetlands is straight forward, the loss to the public resulting from a series of 200 foot towers crossing the recreation area, the scenic and recreational river and the Appalachian trail, cannot be measured in linear feet, square yards or timber loss alone. The lost experience that every hiker from now into perpetuity will feel when they cross the line and see the impacted view-shed forever altered is the "lost use," to the public. This measure can account for much larger mitigation requirements than other resources that can simply be replaced. One strategy for mitigation for the public for the losses they will encounter in order to provide the utility rights of way that are needed is the establishment of a land acquisition and stewardship fund that can enhance connectivity of lands being fragmented and provide for better and safer use opportunities for the public on existing lands.

Relevant agencies:
All permitting agencies

Justification:
Documented case history.

Actions that would be required to achieve this recommendation:
Policy and possibly regulatory changes.

Challenges to achieving this recommendation:
Education concerning the concept and the history of use.

Draft

Additional supporting material:
Long history of case law and settlements on resource damage cases. A recent example of the S-R line Environmental Impact Study/Record of Decision (EIS/ROD) can be provided

Issues to be addressed:
The cost should be borne by the proponent of the proposal as should all costs of the project. The use of mitigation funds should be established in general terms in the permit issuing the right of way. Project proponents should receive due credit for their efforts to offset any impacts to the environment form the competing but legitimate societal needs of energy and conservation.

Draft

Conservation & Natural Resources Recommendation #6

Avoid Geologic Hazards During Planning

Full recommendation:
When constructing the pipeline, efforts should be made to avoid areas of recorded seismicity. While earthquakes in Pennsylvania are generally small, there have been some in the 3-5 range. The regions of seismic activity are relatively small so they should be easy to avoid and thus negate even a small risk.

Relevant agencies:
DCNR BTGS
Pennsylvania Emergency Management Agency (PEMA)

Justification:
To knowingly place a pipeline in even a low seismicity zone when a lower risk zone is available would be irresponsible.

Actions that would be required to achieve recommendation:
Companies should examine seismic data for Pennsylvania prior to siting their pipelines to avoid the potential for earthquakes.

Additional supporting material:
Information provided by DCNR's BTGS can be found at
http://www.dcnr.state.pa.us/topogeo/hazards/earthquakes/index.htm.

Challenges to achieving recommendation:
Overcoming the assumption that there is zero risk.

Draft

Conservation & Natural Resources Recommendation #7

Implement Full-Time Environmental Inspections During Pipeline Construction

Full recommendation:
During construction activity at gas pipeline sites an environmental inspector should be on site for every 5 miles of active construction. The inspectors should be familiar with the construction plans and all applicable permits.

Inspectors should have complete access to the entire site and have the authority to call for a work stoppage until a violation is rectified.

Relevant agencies:
DEP

Justification:
There have been several pipeline related incidents in northeast Pennsylvania where there was delay (or in some cases no action) in notifying the appropriate agencies. Some implications could be that:

- Pipeline contractors may not be knowledgeable on environmental regulation.
- DEP is inadequately staffed to provide the oversight required to insure that environmental regulations are complied with.

Full time, onsite inspectors is common practice in the construction industry and should be implemented for gas pipeline construction.

Actions that would be required to achieve recommendation:
DEP will require an increase in staff and training in order to provide the required inspectors.

Challenges to achieving recommendation:
It may be difficult for DEP to staff up for full time onsite inspectors.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
The cost of inspectors should be borne the pipeline industry. It is part of the cost of environmental protection.

Draft

Conservation & Natural Resources Recommendation #8

Monitor Water Quality During Construction

Full recommendation:
During construction and until vegetation establishment has occurred, water monitoring should be conducted on flowing streams in the project vicinity that may be impacted by construction. The parameters to be measured are: turbidity, pH, temperature, specific conductivity and flow. Whenever a surface water contamination incident is suspected to have occurred, samples will be collected and prepared for laboratory analysis.

Relevant agencies:
DEP

Justification:
During pipeline construction there is a great potential for surface water contamination. Incidents result from poorly deployed and failed erosion control measures, unanticipated movement of earth, and sudden weather events. Incidents arise rapidly and are often not noted until well underway. Little time is available to implement sample collection. Emergency response and inspection agencies are typically not equipped or knowledgeable about the site to collect samples.

Continuous monitoring is needed to determine the time, duration, and intensity of surface water contamination incidents. Laboratory analysis of collected samples will be used to verify data collected by sensors.

There is a general lack of information regarding the effectiveness of BMPs that are currently implemented during pipeline construction.

Actions that would be required to achieve recommendation:
Regulations regarding the erosion and sedimentation (E&S) Plans (25 *PA Code* Chapter 102) need to be updated. Permit writers need to be train on sensor technology for continuous water quality and flow monitoring.

The details of the water quality program should be described in the appropriate permit application. Upon review and approval the plan will be implemented by the permittee.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):
This recommendation will result in pipeline construction companies exercising greater caution and care during and post construction. It will also provide regulators and scientist with more information on how construction practices impact water quality. Ultimately this will lead to improvement and design of pipeline construction best management practices.

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The cost of monitoring should be borne by the pipeline companies. Monitoring is considered as part of environmental protection.

Draft

Conservation & Natural Resources Recommendation #9

Require Post-Construction Monitoring for 5 Years

Full Recommendation:
Infrastructure projects are large and ground disturbing by definition. In order to provide the protection to the potentially impacted resources, it is necessary to establish a required time period for post construction monitoring to be conducted by the project proponent or by the agency and funded by the project initiator. A standard period for post construction monitoring is five years from the established completion of the project. For some resources the results of any impact could be obvious much sooner and specific time periods can be established. There may also be other resources that are not obviously impacted for a longer period than five years and those can be addressed individually in the post construction agreement. The responsible agency must be funded by the project in order to ensure that the monitoring is able to be completed. In most cases, a very accurate estimate of the monitoring cost can be projected, however, it should be understood that the cost will be borne by the infrastructure owner regardless of the final amount.

Relevant Agencies:
All agencies with mitigation or monitoring responsibilities.

Justification:
Regulatory agencies are generally operating at their maximum capability for the available funding and planned project work. Large infrastructure projects proposed by outside entities for profit can require large amounts of resources and staff time that is already committed to existing projects. It is incumbent upon the project proponent to offset the cost to tax payers and to ensure the agency personnel are able to operate on a schedule that is commensurate with their expectations.

Actions that would be required to achieve this recommendation:
Policy approving action and reimbursable agreement outlining requirements included in permit that is issued.

Challenges to achieving this recommendation:
Additional costs make marginal projects infeasible. Private property may need to be treated separately from public lands.

Additional Supporting material:
History of permitting with reimbursable agreements for monitoring in federally approved projects initiated by private entities.

Issues to be addressed:
The complexity and magnitude of resources that are potentially impacted must be established before the permitting is completed. There may be reluctance to establish the funding by the project proponents, but there are thousands of examples of legally approved resource extraction

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projects that have resulted in taxpayer costs of billions of dollars for negative results discovered at a much later date.

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Conservation & Natural Resources Recommendation #10

Tie Permitting Standards to the Duration of Impact

Full recommendation:
Pipelines do impact our waterways and wetlands and how those impacts are characterized and regulated will have a major bearing on avoidance, minimization and mitigation requirements. Perhaps permitting standards could be tied to the duration of the disturbance.

Relevant agencies:
DEP
United States Army Corps of Engineers (USACE)

Justification:
Pipelines do have impacts to our waterways and wetlands.

Actions that would be required to achieve recommendation:
Clear, well vetted definitions created and implemented through a policy change.

Challenges to achieving recommendation:
Defining these terms and policy change.

Additional supporting material:
Perhaps we could find examples from other states.

Issues to address (such as cost, environmental impacts):
Defining "permanent impact" and "temporary impact."

The Joint Permit Application Instructions for a Water Obstruction and Encroachment Permit Application (3150-PM-BWE0036) define permanent and temporary impacts as follows: Permanent impacts are those areas affected by a water obstruction or encroachment that consist of both direct and indirect impacts that result from the placement or construction of a water obstruction or encroachment and include areas necessary for the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway or body of water.

Temporary Impacts are those areas affected during the construction of a water obstruction or encroachment that consists of both direct and indirect impacts located in, along or across, or projecting into a watercourse, floodway, or body of water that are restored upon completion of construction. This does not include areas that will be maintained as a result of the operation and maintenance of the water obstruction or encroachment located in, along or across, or projecting into a watercourse, floodway, or body of water (these are considered permanent impacts).

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Conservation & Natural Resources Recommendation #11

Implement a Mitigation Bank to Improve Water Quality

Full recommendation:
Implementation of offsets and/or offset banks within a pipeline right-of-way provides a tool to state and local government agencies for meeting water quality-based rules and regulations, such as the Clean Water Act (CWA), and corresponding corollary requirements/mechanisms (Municipal Separate Storm Sewer System (MS4) Permits, Total Maximum Daily Loads (TMDLs), new development or redevelopment, etc.). This is especially true where pipelines cross bodies of water or can reasonably be deemed within the immediate drainage of a body of water.

An offset bank is when mitigation for a given impact occurs at a geographically separate region. The mitigation or offset banks provides one central location for mitigation from multiple small impacts within a given service area. This centralization of multiple small impacts into a single large mitigation site allows for more holistic, environmentally beneficial, and ultimately sustainable environmental mitigation.

Relevant agencies:
DEP
USACE
United States Environmental Protection Agency (EPA)
Pennsylvania Public Utility Commission (PUC)
Federal Energy Regulatory Commission (FERC)
Local government(s)

Justification:
Environmental offsets are an appropriate mechanism to counterbalance environmental impacts with environmental gains where social and economic development is highly desired. The need to offset impacts is inherently grounded within requirements and regulations associated with water quality protection.

The establishment of an offset bank at a location that is the focal point of the CWA (streams and bodies of water) can provide an immediate improvement to the water quality, along with establishing long-term protection of the quality of the stream. The additional water quality benefits above and beyond the needed improvements would be established in the form of offsets. This approach would support the anti-degradation policy the most appropriately, and the approach can be used for both impaired streams and “healthy” streams.

Pipeline companies are required to have permanent easements on all of their pipeline ROWs; these easements do not need to be in conflict with the goals of an offset bank. The goals of the offset project and the pipeline project can be mutually beneficial. Offset projects can help stabilize pipeline resource crossings, reducing future risk for pipeline operators, and the management of these areas that would be done under an offset project would help ensure the optimization of the restoration and maintenance of the pipeline ROW.

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The establishment of offsets and/or offset banks within a pipeline ROW can help further the social and economic goals of a municipality while assisting with meeting regulatory responsibilities (such as Impaired Waters Plans or TMDL Plans required by an MS4 Permit).

DEP Form 3800-PM-BPNPSM0100I is the model "MS4 Stormwater Management Ordinance" that MS4 permitted municipalities are/were required to adopt (or variation of the model ordinance). One aspect of the model ordinance results in the requirement a Stormwater Management Plan (SWM Plan) if a homeowner adds impervious areas on their property (e.g. home addition, new garage, etc.). Essentially (and as an example), the homeowner is required to mitigate the stormwater runoff due to the additional impervious areas on their property. This requirement can add to the overall costs of a home addition or similar project. This approach will provide minimal (if any) benefits to receiving streams, which are the focus of the purpose and goals of the CWA. In lieu of requiring a homeowner to mitigate additional impervious areas on their property, the required water quality treatment could be deducted from an offset bank located in the same watershed.

Actions that would be required to achieve recommendation:
Establish current pollutant loading conditions against desired limits (including non-TMDL stream reaches) to define offset bank caps.

Challenges to achieving recommendation:

- Defining the delineation between cleared areas (for access and inspection procedures) and the vegetation necessary for an offset and/or offset bank within the ROW.
- Appropriate watershed level (size) where offsets can apply.
- Point-source limited? Or expanded to include non-point source?
- Habitat and/or endangered species limitations.

Additional supporting material:
The purpose of the CWA is the protection of the beneficial uses of surface waters (drinking supply, agricultural supply, recreation, and so on). A set of mechanisms—primarily through the National Pollutant Discharge Elimination System (NPDES)—has been implemented to meet the requirements of the CWA. Such mechanisms include MS4 Permits and permits associated with new development and/or redevelopment. In turn, it can be reasonably stated that the CWA is concerned about the water quality of a given stream or body of water. These streams and bodies of water are further delineated by drainage areas (or watersheds). A set of offsets (or available offsets within an offset bank) will assist local governments, developers, and home owners with meeting water quality requirements within given watersheds facing water quality impairments or assist with anti-degradation policy efforts.

Issues to address (such as cost, environmental impacts):

- Maintenance requirements of offset banks.
- Administrative requirements to support offsets and/or an offset bank.

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Conservation & Natural Resources Recommendation #12

Reduce Forest Fragmentation in Pipeline Development

Full recommendation:
Forest fragmentation should be considered when planning and evaluating potential routes for rights-of-ways. Comprehensive landscape planning should include efforts to avoid and reduce forest fragmentation and when unavoidable, techniques should be implemented to reduce the effects from fragmentation.

Relevant agencies:
DCNR
PGC
PFBC
County and Municipal Governments
Private landowners

Justification:
Forest fragmentation due to forest loss can significantly alter a landscape and further degrade remaining forests. Due to the abrupt change in land use, the loss of nearly all habitat functions is often permanent, disrupting wildlife populations and native plant communities. Edge effects due to fragmentation often create conditions that can become unsuitable for species that once utilized the interior forest habitat. Practices should be put in place to reduce fragmentation of forests and also minimize the effects of fragmentation.

Actions that would be required to achieve recommendation:
Avoid or Minimize Impacts

- Identify core forest areas that are incompatible with ROW development and preclude development.
- Establish a clear need for the ROW through core forest areas and investigate alternative routes. The location of the preferred route should be justified.
- Work within the constraints of existing corridors to maximize capacity. “Lift and lay” replacement of pipelines that increase capacity are preferred over the addition of a new line.
- Avoid the creation of new corridors when opportunities exist for incorporating ROWs into existing disturbances.
- Minimize fragmentation by co-locating infrastructure with existing disturbances such as roads and other ROW corridors. Encourage companies with adjacent ROW interests to work cooperatively in the use, management and siting of infrastructure
- Minimize permanent and temporary ROW widths and maximize infrastructure capacity within the corridor to the extent that workability and safety are not jeopardized
- Minimize construction footprint by considering alternative construction techniques (i.e. using trenchers) and utilize roads or adjacent ROWs for temporary workspace.

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Alleviate the Effects of Fragmentation

- Minimize the aesthetic impact of fragmenting the forest by working within topographical constraints. Use the lay of the land to 'hide' infrastructure. Use 'dog-legs' to break up the visual effects of long linear corridors.
- Retain vegetative cover associated with riparian and wetlands crossing by using boring or directional drilling techniques.
- Restore the site as quickly as possible, to reduce duration of impact by planting disturbed areas with native plants.
- Tree and shrub planting can accelerate reforestation of temporary work spaces.
- Planting conifers along corridor edges can reduce edge effects into the forest
- Manage the row for scrub-shrub habitat; this will reduce contrast between forest habitats and the fragmenting feature as well as reducing the impact as a wildlife barrier.

Challenges to achieving recommendation:

- Resistance of operators to cooperate with competing interests in ROW planning and siting to minimize footprints, manage corridors.
- Limitations due to operability of equipment and topography.

Additional supporting material:

BOF Oil and Gas Guidelines; FERC Upland Erosion Control, Revegetation and Maintenance Plan; FERC Wetland and Waterbody Construction and Mitigation Procedures.

Issues to address (such as cost, environmental impacts):

- Co-location of infrastructure is strongly encouraged, yet one of the long term ramifications of this approach is ever increasing ROW corridors widths that may be socially and environmentally unacceptable.
- Increased cost in restoring edges with shrub and tree species

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Conservation & Natural Resources Recommendation #13

Promote Biodiversity in Pipeline Development

Full recommendation:
Promote the diversity of plant, wildlife and natural community diversity by taking into consideration siting of the pipeline and restoration practices to benefit threatened and endangered species, pollinators, small mammals, songbirds, game species, reptiles, amphibians and natural plant communities.

Relevant agencies:
DCNR
PGC
PFBC

Justification:
Pipeline ROW impacts to resources can result in habitat loss, habitat and population fragmentation, wildlife displacement, and the disruption of rare, threatened, and endangered species. However, pipeline ROWs can be restored to not only provide valuable habitat for game, non-game or threatened and endangered species but also enhance opportunities for some species where their habitat may be lacking and appropriate habitat opportunities exist. Threatened and endangered species impacts can be minimized or avoided through conservation planning efforts.

Actions that would be required to achieve recommendation:

- Follow appropriate planning techniques to avoid impacts to threatened, endangered or rare species or community habitats by using the PA Conservation Explorer (formerly Pennsylvania Natural Diversity Inventory (PNDI)) and avoid areas showing biodiversity such as Important Bird or Mammal Areas).
- Attract and support pollinator habitat by planting a mix of native wildflowers and grasses.
- Develop techniques to improve wildlife habitat along the ROW by feathering the pipeline edges with shrub plantings.
- Minimize impacts to streams, wetlands and riparian areas by avoidance or minimizing the width of the ROW. Vegetated buffers should be planted along the riparian area consisting of a combination of native grasses, forbs, shrubs and trees. Tree stumps should be kept in place to sprout where riparian vegetation was removed, reducing planting costs.
- Revegetate and restore the pipeline with native plantings, which provide appropriate habitat for Pennsylvania's plants and animals while also decreasing the possibility of introduction of non-native invasive plants.
- Improve habitat for threatened and endangered species near confirmed locations. Depending on species' needs, activities could include rock piling, shrub planting or providing crossing opportunities.
- Investigate opportunities to plant with seed from Pennsylvania to promote Pennsylvania companies as well as genetic diversity and local seed sourcing.

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Challenges to achieving recommendation:

- Operators and contractors should be educated on the opportunities for biodiversity enhancements and management opportunities.
- Operators and contractors should be educated on the protocol for maintaining habitat areas during maintenance activities.

Additional supporting material:
BOF Oil and Gas Guidelines; FERC Upland Erosion Control, Revegetation, and Maintenance Plan

Issues to address (such as cost, environmental impacts):

- Potential additional cost of plantings or other wildlife enhancement opportunities.

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Conservation & Natural Resources Recommendation #14

Develop Rare Species Work Windows to Avoid Impacts

Full recommendation:
Develop and provide work windows for pipeline ROW activities during the planning process that will avoid and minimize disturbances to species of concern. Many of these species are rare, threatened, or endangered and conducting the work at times when these species are less susceptible to impacts is recommended by regulatory agencies. The work windows can be divided into two different matrixes, one for construction activities and one for maintenance activities. The work windows should be broken down by activity type and species of concern.

Relevant agencies:
All agencies

Justification:
Impacts to species of special concern can be minimized if proper work windows for various pipeline ROW activities is provided and upheld. The work window matrix can be a quick easy guide for operators and contractors to reference when wanting to conduct a certain activity within the ROW.

Actions that would be required to achieve recommendation:

- Compile activity types and timing restrictions for special species in one work window matrix.
- Make operators and contractors aware of timing restrictions.

Challenges to achieving recommendation:

- Keeping timing restrictions up to date.
- Operators and contractors should be educated on timing restrictions.
- Enforcement of timing restrictions.

Additional supporting material:
An example of a timing restrictions work window matrix used for a transmission line maintenance is provided below.

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ROW Species Work Window Matrix				
Species	**Mowing Work Window**	**ROW Floor Cutting by Hand, Tree Trimming/Topping By Hand Work Window**	**Tree Cutting/Removal By Hand Work Window**	**Selective Foliar Herbicide Application by Hand Work Window**
Indiana Bat / Northern Long Eared Bat Potential Occurrence	No Seasonal Restrictions	No Seasonal Restrictions	October 1 to March 31	No Seasonal Restrictions
Bald Eagle (Wintering - within ½ mile)	April 1 to December 14	April 1 to December 14	April 1 to December 14	April 1 to December 14
Red-Shouldered Hawk (Nest)	July 1 to February 28	July 1 to February 28	July 1 to February 28	No Seasonal Restrictions
Red-Headed Woodpecker	August 16 to March 31	August 16 to March 31	August 16 to March 31	No Seasonal Restrictions
Barred Owl	July 1 to February 28	July 1 to February 28	July 1 to February 28	No Seasonal Restrictions
Grassland Birds (Bobolink, Eastern Meadowlark, Grasshopper Sparrow, Henslow's Sparrow, Savannah Sparrow, Vesper Sparrow, Horned Lark, Upland Sandpiper)	September 1 to March 14 (raise mower blades as high as possible)	No Seasonal Restrictions	No Seasonal Restrictions	No Seasonal Restrictions
Shrub Birds (Golden-Winged Warbler, Black-Billed Cuckoo, Brown Thrasher, Canada Warbler, Least Flycatcher, Nashville Warbler, Winter Wren, Yellow-Breasted Chat)	September 1 to March 31 (raise mower blades as high as possible and retain shrubs/small trees)	September 1 to March 31 (not as high as possible and retain shrubs/small trees where feasible)	September 1 to March 31	July 16 to April 14
Wood Turtle	December 1 to February 28 (when less than 100' from stream) or November 16 to March 14 (when greater than 100' from stream)	No Seasonal Restrictions or November 16 - March 14 (Spans Old Mine Road to Tower 4803)	No Seasonal Restrictions or November 16 to March 14 (Spans Old Mine Road to Tower 4803)	No Seasonal Restrictions (Monitor required March 15 - November 15 Old Mine Rd - 4803)
Timber Rattlesnake	November 1 to March 31	No Seasonal Restrictions (Use caution driving on roads to avoid hitting snakes) or November 1 to March 31 (Old Mine Rd east to NPS boundary)	No Seasonal Restrictions (Use caution driving on roads to avoid hitting snakes) or November 1 to March 31 (Old Mine Rd east to NPS boundary)	No Seasonal Restrictions (Monitor required April 1 - October 31 Old Mine Rd east to NPS Boundary)
Longtail Salamander	October 1 to March 31 (within 300 feet of wetlands, vernal pool, pond, stream)	No Seasonal Restrictions	No Seasonal Restrictions	October 1 to March 31 (within 300 feet of wetlands, vernal pool, pond, stream)
Silver-Bordered Fritillary	September 1 to March 31 (maintain any Sweet Pepper Bushes)	September 1 to March 31 (maintain any Sweet Pepper Bushes)	September 1 to March 31 (maintain any Sweet Pepper Bushes)	Perceived NJDEP approval to spray in potential habitat (pass per absence species survey). No timing restriction.
Mussels (Creeper, Dwarf Wedgemussel, Eastern Lampmussel, Eastern Pondmussel, Green Floater, Tidewater Mucket, Triangle Floater, Yellow Lampmussel)	No Seasonal Restrictions (no mowing w/ 300 feet of stream	No Seasonal Restrictions	No Seasonal Restrictions	December 1 to March 31 & July 1 to July 31 (no spraying w/ 300 feet of stream)

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Conservation & Natural Resources Recommendation #15

Minimize Impacts to Riparian Areas at Stream Crossings

Full recommendation:
Specific techniques should be employed within the riparian zone to avoid or minimize impacts to streams and rivers. The ROW corridor width and disturbance should be minimized and native riparian vegetation should be planted within the riparian zone. Riparian buffers should consist of a combination of vegetation types to include grasses, forbs, shrubs and trees.

Relevant agencies:
DCNR
PGC
PFBC
DEP

Justification:
Riparian areas are sensitive habitats that must be protected and restored. Pollution or sedimentation from construction can silt in stream beds to the detriment of aquatic ecosystems. The appropriate management of riparian areas is crucial in the protection and enhancement of Pennsylvania's water resources. Riparian buffers are complex ecosystems that help provide optimum food and habitat for stream communities, as well as being useful in mitigating or controlling point and nonpoint source pollution by both keeping the pollutants out and increasing the level of instream pollution processing. Riparian buffers serve as a barrier to prevent: most pollutants from entering aquatic environments and minimize erosion and sedimentation, any altering of the temperature regime or the aquatic ecosystem as a whole.

Actions that would be required to achieve recommendation:

- Minimize ROW width in riparian zones as much as possible.
- Cross streams at a perpendicular angle.
- Vegetated buffers should be planted along the riparian area consisting of a combination of native grasses, forbs, shrubs and trees. Tree stumps should be kept in place to sprout where riparian vegetation was removed, reducing planting costs.
- Stream crossing methods should be explored on a case-by-case basis to plan for special resource needs per crossing.
- Horizontal Directional Drilling (HDD) may be used where appropriate to avoid or minimize direct impacts to the stream or riparian area.

Challenges to achieving recommendation:

- Potential limitations with HDD due to engineering constraints and possibly the need for a larger footprint, but it may be sited farther away from the riparian zone.
- Operability and safety in a minimized corridor width.
- Operability of equipment on existing cut stumps.

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Additional supporting material:
FERC Wetland and Waterbody Construction and Mitigation Procedures, DEP Riparian Forest Buffer Guidance, BOF Oil and Gas Guidelines, BOF Planting and Seeding Guidelines,

Issues to address (such as cost, environmental impacts):
This BMP will minimize environmental impacts to the riparian area and stream or wetland. HDD may increase the cost of pipeline construction and has the potential to increase the footprint.

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Conservation & Natural Resources Recommendation #16

Promote Wildlife Habitat Opportunities Along Pipeline Corridors

Full recommendation:
Promote wildlife habitat features along pipeline corridors that will benefit species of special concern, small mammals, songbirds, game species, reptiles, and amphibians.

Relevant agencies:
DCNR
PGC
PFBC

Justification:
Impacts to wildlife resources from pipeline ROW activities can result in habitat loss, habitat and population fragmentation, wildlife displacement, and the disruption of rare, threatened, and endangered species. However, pipeline ROW's can provide valuable habitat for game, non-game or threatened and endangered wildlife if properly managed and maintained. Established goals for managing for wildlife within the ROW determines what vegetation planting or control method may best be utilized.

Sensitive species must be addressed during pipeline construction and maintenance. Not providing habitat features will result in low quality habitat for a wide variety of wildlife.

Actions that would be required to achieve recommendation:
- Avoid areas with locations of threatened and endangered species.
- Improve habitat for threatened and endangered species near confirmed locations. Activities could include rock piling, shrub planting or providing crossing opportunities.
- For above-ground temporary pipelines, crossings should be created to allow for the movement of wildlife across the pipeline row.
- Provide offsets where habitat is created or improved to compensate for impacted habitat.

Challenges to achieving recommendation:
- Operators and contractors should be educated on the opportunities for wildlife enhancements and management opportunities.
- Operators and contractors should be educated on the protocol for maintaining wildlife areas during maintenance activities.

Additional supporting material:
BOF Oil and Gas Guidelines, FERC Upland Erosion Control, Revegetation, and Maintenance Plan.

Issues to address (such as cost, environmental impacts):
- Reduced costs in maintenance from a decrease in mowing in non-herbaceous areas.
- Additional cost of plantings or other wildlife enhancement opportunities.

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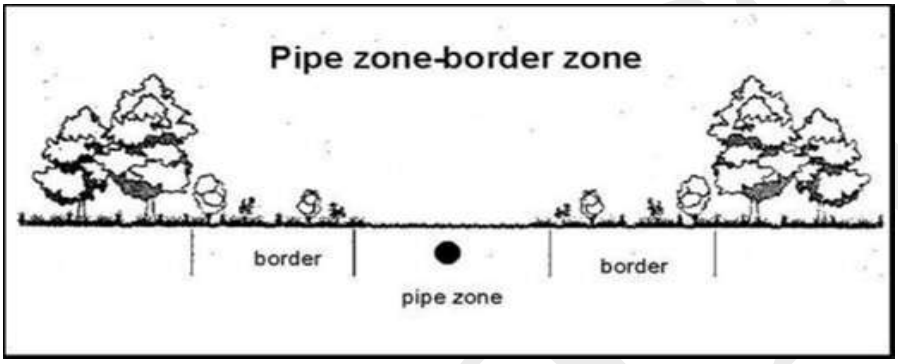
Conservation & Natural Resources Recommendation #17

Restore and Maintain a Border Zone in Forested Areas

Full recommendation:
Maintain the permanent ROW as pipeline-compatible shrub habitat within the border zone, while still allowing for the 10' herbaceous pipe zone corridor. The border zone plants must not compromise pipeline integrity and should be native species. The pipe zone should also be a native mix of herbaceous species.



Relevant agencies:
DCNR
PGC
PFBC

Justification:
Maintaining the border zone of the permanent pipeline corridor as shrub and herbaceous habitat will provide additional wildlife habitat opportunities, minimize impacts to certain wildlife species and reduce the maintenance costs of mowing.

Actions that would be required to achieve recommendation:

- An Integrated Vegetation Management (IVM) approach should be taken in determining the restoration and maintenance of the pipeline ROW. IVM is used to assess, plan, choose among, selectively apply, and monitor different types of treatments, based on site-specific needs within the ecosystem to minimize environmental impacts, as well as other economic, social or safety goals and objectives.
- Deep rip compacted soil prior to planting.
- Maintain the pipe zone in an herbaceous state using native plant species, which may require mowing every 3-5 years.
- Plant a variety of native shrubs, grasses and forbs in border zone to create vertical and structural diversity. For existing pipeline ROW's, native shrubs can be added to the current plantings in the border zone.
- Only treat vegetation that has the potential to compromise the pipeline integrity or that encroaches on the pipe zone.
- Tree and Shrub Planting can accelerate reforestation of the temporary workspace.

Challenges to achieving recommendation:

- Operators and contractors should be educated on the benefits of providing border zones, as well as the appropriate planting and maintenance techniques until use of this technique becomes routine.

Additional supporting material:
Integrated Vegetation Management guidance; FERC Upland Erosion Control, Revegetation, and Maintenance Plan; BOF Planting and Seeding Guidelines; BOF Pipeline ROW Wildlife Habitat Guidelines.

Issues to address (such as cost, environmental impacts):

- Reduced costs of mowing by allowing scrub-shrub habitat to develop.
- Additional cost of planting the border zone with shrubs.

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Conservation & Natural Resources Recommendation #18

Minimize Aesthetic Impacts in Pipeline Development

Full recommendation:
Careful planning and thoughtful construction design can minimize the negative aesthetic impacts that can be associated with pipeline installation.

Relevant agencies:
DCNR
County and Township Governments

Justification:
Pipeline rights-of way can have unappealing or intrusive visual effects on the landscape, particularly along roadways, vistas, or trails. While not entirely preventable, these effects can be ameliorated for the benefit of the public that travel or recreate near pipeline corridors.

Actions that would be required to achieve recommendation:

- Design pipeline corridors to follow topographic contour lines, allowing remaining vegetation to help block views of the rights-of way.
- Include dog-legs or bends in the pipeline route, particularly near highly-visible portions, to help limit the line-of-sight along the corridor.
- Co-locate new pipelines along existing rights-of-way to minimize the creation of new, separate clearings.
- Utilize existing edges or disturbed areas to minimize fragmentation of the landscape.
- Feather vegetation along the edges of rights-of-way by leaving vertical structure between the pipeline and the undisturbed forest.
- Leave buffers of trees or shrubs between the pipeline corridor and an adjacent road or trail to serve as a visual screen.
- Consider appropriate measures to conceal associated pipeline infrastructure within the surrounding landscape.

Challenges to achieving recommendation:

- Additional route planning and design considerations necessary prior to construction.
- Differences in desires and recommendations from different landowners along the pipeline route.
- Balancing measures to minimize aesthetic impacts with environmental constraints and construction safety requirements.

Issues to address (such as cost, environmental impacts):
Lack of knowledge about ways to address aesthetic impacts with private landowners and planning agencies.

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Conservation & Natural Resources Recommendation #19

Minimize Recreational Impacts in Pipeline Development

Full recommendation:
Careful planning and thoughtful construction design can both minimize recreational impact that can be associated with pipeline installation.

Relevant agencies:
DCNR
County and Township Governments

Justification:
Many pipelines rights-of-way are proposed within areas of high recreation use; these activities may include hiking, wildlife viewing, hunting and snowmobiling. Pipeline rights-of-way can disrupt the landscape connectivity and aesthetics, construction activities can disrupt areas or seasons of high recreational use, and newly created rights-of-way can promote unauthorized access or land use. These potential impacts can be minimized with careful planning.

Actions that would be required to achieve recommendation:

- Consider the full extent of recreational activities desired, atmosphere, conditions and the seasons in which they occur when planning pipeline rights-of-way and develop alternatives as applicable. ROW adjustments may be necessary to avoid impacting recreation activities.
- Coordinate the timing of pipeline installation and construction activities to avoid conflict with recreation during periods of heavy use. Consider restricting operator activity during high conflict dates.
- Apply setbacks where forest connectivity and aesthetics are the primary values associated with the recreation.
- Minimize probable conflict with the unauthorized use of rights-of-way corridors by off road vehicles.
- Consider appropriate signage measures.
- Communicate temporary impacts from construction activities to stakeholder groups.

Challenges to achieving recommendation:

- Additional route planning and design considerations necessary prior to construction.
- Differences in desires and recommendations from different landowners and user groups.

Additional supporting material:
BOF Oil and Gas Guidelines, SCORP.

Issues to address (such as cost, environmental impacts):

- Identify educational opportunities for private landowners and planning agencies concerning recreation planning and ways to address potential impact.
- Identify educational opportunities for pipeline operators to consider impacts to recreation.

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Conservation & Natural Resources Recommendation #20

Provide Recreational Opportunities in Pipeline Development

Full recommendation:
Careful planning and thoughtful construction design can promote opportunities for healthful outdoor recreation on pipeline rights-of-way.

Relevant agencies:
DCNR
County and Township Governments

Justification:
Many pipelines rights-of-way are proposed within areas of high recreation use; these activities may include hiking, wildlife viewing, hunting and snowmobiling. Pipeline rights-of-way provide opportunities for passive and active recreation with careful planning.

Actions that would be required to achieve recommendation:

- Consider opportunities for enhancement of existing recreation opportunities when planning pipeline locations (i.e. is the pipeline going through or paralleling existing parks or recreation areas; what types of recreation would be compatible within the pipeline and the local area).
- Co-locate low impact recreational trails within rights-of-way corridors where appropriate.
- Co-locate snowmobile trails onto rights-of-way corridors where appropriate. Where co-locating, avoid using water bars, instead utilize shallow broad based dips or stone lined channels for motorized trails.
- Where shared-use is occurring, consider appropriate signage to show both the positive aspects of sharing the use, as well as safety measures as needed.
- Conduct information sessions with the responsible engineers, construction companies or user groups for appropriate design and layout.

Challenges to achieving recommendation:

- Additional route planning and design considerations necessary prior to construction.
- Differences in desires and recommendations from different landowners and user groups.

Additional supporting material:
BOF Oil and Gas Guidelines, SCORP.

Issues to address (such as cost, environmental impacts):

- Identify educational opportunities for private landowners and planning agencies concerning recreation planning and potential opportunities.
- Identify educational opportunities for pipeline operators to consider impacts to recreation.

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Conservation & Natural Resources Recommendation #21

Reseed Right-of-Ways Using Native Plants

Full recommendation:
Reseeding a right-of-way (ROWS) corridor with native grasses, legumes, and wildflowers can provide a native meadow habitat that encourages native pollinators, provides wildlife habitat, slows the spread of invasive plants, allows for natural succession of the corridor to native shrubs, and restores ecosystem functions to the disturbed site.

Relevant agencies:
DCNR
DEP
NRCS
PA Dept. of Agriculture (Ag)
County Conservation Districts

Justification:
Many right-of-ways are reseeded with grass seed mixes that are entirely non-native species, such as fescue, timothy, or orchard-grass. Non-native seed mixes may provide quick greening and establishment, but provide only a fraction of the functions that native mixes provide in natural ecosystems. Native seed mixes rarely require expensive additions of fertilizer and lime to the soils on site, which are required for non-native grasses and clover. Native grasses only require mowing every 3-5 years, reducing the costs of annual maintenance.

Actions that would be required to achieve recommendation:

- Operators and contractors should be educated on the values and uses of native grasses, legumes, and wildflowers in providing ecosystem services.
- Operators and contractors should be trained on the different site preparation needs between non-native and native plantings that are necessary to achieve success.
- Ideally, planting of native grasses takes place in the spring. If construction is completed during other times of the year, a cover crop should be used and then full re-seeding of the corridor should be performed the following spring.
- Native grasses require mowing only once every 3-5 years. Care would need to be taken to ensure that areas outside the immediate pipe zone were not mowed too frequently.

Challenges to achieving recommendation:

- Additional pre-construction planning may be required prior to commencement of earth disturbance activities, until the use of native plants in pipeline seeding becomes routine.
- Ensuring that the enhanced root growth, rather than above-ground growth, of native grasses is recognized to be effective E&S control on a reseeded corridor.
- Native grass seed can be more expensive than non-native seed and sometimes difficult to obtain if not ordered ahead of time.
- Collaboration between DCNR botanists, DEP regulators, and NRCS inspectors may be needed to allow for the slower-growing native species to meet current E&S regulations and the expectations of the inspectors.

Additional supporting material:

- Below are examples of seed mixes used on State Forest land for restoring pipeline and gas infrastructure sites.
- PA Bureau of Forestry Planting and Seeding Guidelines (excerpts included in this document), DCNR website
- "Sustainable Landscapes, Certification Manual" PA Landscape & Nursery Association; http://www.plna.com/?page=Sust_Land_Cert

Issues to address (such as cost, environmental impacts):

- Lack of knowledge about the ecological benefits of native warm season grasses, legumes, and wildflowers and ways in which these meadow habitats improve overall ecosystem health.
- Native grass, legume, and wildflower seed can be more expensive that non-native seed mixes; however, since fertilizer and lime are not required with native mixes, the costs between the two strategies are likely to be close to equal.

Basic Native Seed Mix and Potential Additions

BOF General Native Seed Mix

Cover Crop: 30 lbs/ac Oats (*Avena fatua*)

3 lb PLS	Big bluestem (*Andropogon gerardii*)
3 lb PLS	Little bluestem (*Schizachyrium scoparium*)
2 lb PLS	Indiangrass (*Sorghastrum nutans*)
2 lb PLS	Switchgrass (*Panicum virgatum*)
2 lb PLS	Deertongue (*Dicanthelium clandestinum*)
6 lb PLS	Virginia wildrye (*Elymus virginicus*)
3 lb	Partridge pea (*Chamaecrista fasciculata*)

Total: 21 lbs/acre

Below are some additions or alterations to the native seed mix for unique situations or management goals.

To attract pollinators, consider adding a combination of these native wildflowers…

0.5-2 lb	Showy tick-trefoil (*Desmodium canadense*)
0.5-1 lb	Tall white beardtongue (*Penstemon digitalis*)
0.5-2 lb	Grey goldenrod (*Solidago nemoralis*)
0.5-2 lb	Common milkweed (*Alclepias syriaca*)
0.5-2 lb	Butterfly milkweed *(Alclepias tuberosa*)
0.5-2 lb	Wild bergamot (*Monarda fistulosa)*
0.5-1 lb	Black-eyed susan (*Rudbeckia hirta*)
0.5-1 lb	Ox-eye sunflower (*Heliopsis helianthoides*)
0.5-1 lb	New England aster (*Symphiotrichum novae-angliae)*
0.5-1 lb	Mountainmints (*Pycnathemum incanum* or *P. tenuifolium*)

Typically 0.5 lbs per acre is sufficient when added to the above Native mix. If the expressed goals of the site is to attract pollinators, consider adding more seed per acre. The best wildflower plantings include enough species to have at least one species blooming during all three growing seasons.

In shaded sites reduce the mix to…

3 lb PLS	Virginia wildrye (Elymus virginicus)
3 lb PLS	Canada wildrye (Elymus canadensis)
5 lb	Autumn bentgrass (Agrostis perennans)
2 lb PLS	Deer tongue (Dicanthelium clandestinum)
30 lb	Cover Crop

Total: 43 lb/acre

This is a short-lived perennial mix that will allow for natural herbaceous and woody succession following timber sale retirement.

To simply control erosion and sedimentation reduce the mix to…

10 lb PLS	Deertongue (Dicanthelium clandestinum) or Switchgrass (Panicum virgatum)
5 lb PLS	Virginia wildrye (Elymus virginicus)
5 lb	Autumn bentgrass (Agrostis perennans)
2 lb	Partridge pea (Chamaecrista fasciculata)
30 lb	Cover Crop

Total: 52 lb/acre

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Basic Native/Non-Native Seed Mix

BOF General Native/Non-native Seed Mix

Areas with slopes less than 15%

2 lb	Timothy (*Phleum pretense*)
6 lb	Perennial ryegrass (*Lolium perenne)*
6 lb PLS	Virginia wildrye (*Elymus virginiana*)
2 lb PLS	Little bluestem (*Schizachyrium scoparius)*
2 lb PLS	Big bluestem (*Andropogon gerardii*)
6 lb	White clover (*Trifolium repens*)
4 lb	Partridge pea (*Chamaecrista fasciculata*)
0.5 lb	Black-eyed susan (*Rudbeckia hirta*)

TOTAL: 28.5 lb/acre

Areas with slopes greater than 15%

6 lb	Timothy (*Phleum pretense*)
4 lb	Perennial ryegrass (*Lolium perenne)*
4 lb PLS	Virginia wildrye (*Elymus virginiana*)
3 lb PLS	Little bluestem (*Schizachyrium scoparium*)
3 lb PLS	Big bluestem (*Andropogon gerardii*)
3 lb PLS	Indiangrass (*Sorghastrum nutans*)
6 lb	White clover (*Trifolium repens*)
4 lb PLS	Deertongue (*Dicanthelium clandestinum*)
2 lb	Partridge pea (*Chamaecrista fasciculata*)
0.5 lb	Black-eyed susan (*Rudbeckia hirta*)

TOTAL: 35.5 lb/ac

All attempts should be made to use all native seed mixes. At sites with many acres that need planted, in areas with severely steep slopes, or for projects where funds available for purchasing seed may be limited, this mix of native and non-native species may be more applicable. All additions discussed on the previous page can also be applied to this seed mix.

Conservation & Natural Resources Recommendation #22

Use Pennsylvania-Sourced Plant and Seed Vendors and Landscape Services

Full recommendation:
Revegetation and/or restoration should be a priority when planning a pipeline ROW. These activities require the procurement of plants and seed that complement and enhance the regional native biodiversity of the impacted ecosystem. Pennsylvania is home to nurseries and seed companies that specialize in producing Pennsylvania native plants specifically for restoration and conservation projects. Additionally, the Pennsylvania Department of Agriculture's "PA Preferred" program promotes Pennsylvania agricultural producers where the majority of the crop is "grown, harvested and processed in Pennsylvania." These producers produce many of the plants recommended in the "White House Pollinator Initiative" of 2014 with the goal of reducing the loss of important pollinator species.

In addition, specialized landscape restoration services is required for pipeline ROW projects. A minimum of 5 years of demonstrated experience in environmental restoration construction and/or reforestation should be required by all vendors to participate in the contract process. The Pennsylvania Landscape and Nursery Association as part of its Pennsylvania Certified Horticulturalist (PCH) Program offers a "Sustainable Landscapes Certificate (SLC) program" for members that specialize in plants and ecosystem services. A contractor that holds this certificate could also be prequalified to participate in the contract process.

The Department of Community and Economic Development (DCED) mission is to "foster opportunities for Pennsylvania business to thrive" Pipeline ROW Restoration represents a unique opportunity to foster a strong Public/Private partnership with the nursery and landscape industry. All efforts should be made to utilize Pennsylvania businesses and their unique products and services in the selection and procurement process for pipeline ROW restoration.

Relevant agencies, organizations and initiatives:
Ag
DCED
DCNR
DEP
Pennsylvania Department of Forestry
Pennsylvania Landscape and Nursery Association
United States White House Pollinator Initiative

Justification:
Enhance public/private partnerships with Pennsylvania agencies and private sector companies. Create important "green jobs" for Pennsylvanian's. Pennsylvania businesses working to restore Pennsylvania ecosystems. Investment in Pennsylvania's "Green Industry" companies and their employees.

Actions that would be required to achieve recommendation:
Creation of contractual language in standardized procurement or Request for Proposal (RFP) documents.

Challenges to achieving recommendation:

- The "Sustainable Landscapes Certificate" through the Pennsylvania Landscape and Nursery Association is a relatively new program and has limited number of participants at this time. Selection of landscape contractors will need to rely more heavily on experience history until more providers complete the program.
- Pipelines cross state boundaries – explore if conflicts with interstate commerce clauses requiring PA companies to be considered first as suppliers and/or contractors
- Consideration if availability issues of plants, seed species and/or quantities for specifications if unable to be met by Pennsylvania businesses.

Additional supporting material:

- White House Pollinator Initiative
- PCH / SLC Handbook
- Ag PA Preferred program fact sheet

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Conservation & Natural Resources Recommendation #23

Require Performance-Based Metrics for Long-Term Maintenance of Right-of-Ways

Full recommendation:
Long Term Maintenance associated with restoration projects should require performance based metrics to evaluate success.

Relevant agencies:
DCNR
DEP

Justification:
Effort and performance are measured differently; one is subjective or qualitative and the other is objective or quantitative. Performance based activities associated with landscape restoration require implementation of management strategies to meet measurements goals. Such strategies span the life of a project from start (planning) to finish (maintenance\monitoring).

Ecosystems associated with reforestation\afforestation, riparian buffer establishment, wetland\stream\floodplain restoration, meadows, and other habitats are often on a stability continuum. The first several years of a project are considered the establishment period, which typically take 1-3 years but could take up to 5 years depending on the level of maintenance. Green Infrastructure projects like other infrastructure require mid and long term maintenance, in addition to the establishment period, to assure success.

Maintenance strategies include but are not limited to hydrologic modification, Integrated Pest Management (IPM), (chemical\mechanical), soil health, sediment transport\erosion management, flooding, plant health, ecosystem balance, nutrient loading, aesthetics, anthropogenic modifications, etc.

Actions that would be required to achieve recommendation:

- Maintenance needs to be recognized as a necessity not an option.
- Maintenance should be addressed in the planning and design phases of a project.
- Adequate funding and\or job costing should identify and specify actions within the establishment period and mid to long term project life span.

Challenges to achieving recommendation:
The act of planting a tree does not constitute success or management. The knowledge, importance and understanding of mid and long-term maintenance associated with a successful restoration project is misunderstood or may not exist. As a result, policy and processes for funding has been limited, reduced or eliminated for ongoing maintenance for public, private, and non-profit restoration projects. This has significant implications to long term projects success.

An example of this is the Conservation Reserve Enhancement Program (CREP) administered by state and federal agencies within Pennsylvania. Although maintenance is a requirement to the program there is little oversite to ensure it is being performed and funding provided to this is not

sufficient to achieve success. As a result, performance expectations have not been realized at the state level.

If recognized performance metrics for management can be established, it will pave the way for funding groups to recognize long term maintenance in the same light as the actual implementation of the project that will require the maintenance.

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Conservation & Natural Resources Recommendation #24

Prevent Invasive Plant Species Establishment

Full recommendation:
A number of prevention techniques can be utilized to limit the spread and establishment of invasive plants within pipeline construction areas. It is more efficient and cost-effective to prevent invasive plants from becoming established than to eradicate them once established. Smaller or novel infestations of invasive plants are much easier to eradicate than well-established, larger populations.

Relevant agencies:
DCNR
Ag
DEP

Justification:
Non-native, invasive plant species can be ecologically devastating to a landscape. Invasive plants have been found to inhibit native tree regeneration, exclude native wild plants, disrupt wetland communities, do not provide wildlife with the appropriate food due to their non-native nature, and result in the slowing of natural ecological processes. Disturbed, maintained areas, such as pipeline corridors, can provide ideal habitat for the colonization and spread of invasive plant species across a landscape. Pipelines may be an inadvertent conduit for spreading invasive plants to neighboring properties and affecting those landowners. Invasive plant species including noxious weeds can also cause economic impact to agricultural areas and other property owners.

Actions that would be required to achieve recommendation:

- Clean all vehicles, construction, mowing or seeding equipment thoroughly when moving site to site.
- Whenever possible, utilize on-site mulch materials (such as mulching trees marked for removal), rather than bringing in mulch from other sites.
- Examine sources of fill and quarry material for invasive plant material.
- Move equipment from uninvaded areas to areas of high invasion.
- Conduct a pre-construction inventory to establish the presence or absence of invasive plants at the site prior to earth disturbance, then develop a plan for treatment, removal, planting or monitoring based on number of infestations, their locations and population size.
- Use straw not hay following seeding (straw does not have seeds, therefore has less invasive material in it).
- Re-vegetate disturbed areas with a more aggressive native species or seed at higher rates in areas of known infestations to out-compete invasive species.
- Monitor for novel populations of invasive plants after construction is complete and remove or treat promptly.

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Challenges to achieving recommendation:

- Additional pre-construction planning prior to commencement of earth disturbance activities.
- Availability/cost of equipment-cleaning devices.
- The lack of regulation that requires invasive plant management prior to and following pipeline construction.
- Breakdown of communication between landowners or regulators, the pipeline operator, and their construction contractors.
- Additional cost of surveying, monitoring and treatment of invasive species.

Additional supporting material:
DCNR Oil and Gas Guidelines (Appendix D 2015), PA DCNR website, Ag Noxious Weed Law, Bartlett Tree Lab Technical Reports.

Issues to address (such as cost, environmental impacts):

- Lack of knowledge about invasive species ecological impacts among operators and the public.
- Lack of regulation regarding the responsibility of pipeline operators to monitor for and control or eradicate PITF.

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Conservation & Natural Resources Recommendation #25

Finalize Functional Protocols for Impacts and Offsets

Full recommendation:
The DEP should finalize the Functional Protocol for debiting impacts and crediting offsets. This provides certainty to permit applicants.

Relevant agencies:
DEP
DCNR
USACE
Pennsylvania Department of Transportation (PennDOT)

Justification:
Under current regulations different requirements within different regions or USACE districts can lead to different mitigation requirements for similar impacts. Providing a statewide Protocol will help maintain more consistency with mitigation requirements across the state.

Actions that would be required to achieve recommendation:
Complete the policy, implement by providing training and a person(s) to answer questions and add staff to support continued permitting.

Challenges to achieving recommendation:
Policy needs to be completed, then training provided, and additional staff needed at the DEP Central Office, 105 Program to implement. Training needs to occur with both the USACE, the DEP regional offices, and the consulting community. Requirements for projects that are in the permitting process when the protocol is approved need to be clarified, and those projects should not need to recalculate mitigation requirements.

Additional supporting material:
The Pennsylvania Function Based Aquatic Resource Compensation Protocol (DEP Document Number 310-2137—001) is attached. The purpose of the functional protocol is to provide standard guidelines for evaluating the need for aquatic resource mitigation for the purposes of meeting application requirements contained in Chapter 105. The guidance outlines how to conduct evaluations, describes factors that should be considered in performing these evaluations, and establishes a system for quantifying mitigation requirements and proposals to meet those requirements. This guidance has been developed for use with the three Level 2 Resource Condition Assessment Protocols (310-2137-002, 310-2137-003 and 310-2137-004).

The functional protocol establishes a standardized functional approach for assessing all aquatic resource types according to five functional subgroups: hydrogeologic (hydrodynamics, storage, baseflow), biogeochemical (vegetation, soils and hydrology), habitat (community and species level), recreation (public recreational opportunities), and resource support (role in maintaining water quality). Impacts are categorized as either direct (loss of resource area and function), or indirect (loss of resource function only). These factors are incorporated into a standard

compensation equation, which determines the compensation requirement for the impacted aquatic resource.

Issues to address (such as cost, environmental impacts):
Cost for staff and training, training time frames, transition issues with projects in-permit.

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Conservation & Natural Resources Recommendation #26

DEP Should Follow the 2008 Final Mitigation Rule for All Mitigation Sites

Full recommendation:
There exist questions on whether long term restrictions and encumbrances are being required consistent with the 2008 Final Mitigation Rule on public lands or on permittee responsible mitigation projects. Moreover, to the extent public lands are subsidized and planned for protection, they should not necessarily be eligible for mitigation purposes.

Relevant agencies:
DEP
DCNR
USACE
PGC
PFBC
U.S. Forest Service (UFS)
U.S. Department of Agriculture (USDA)

Justification:
The DEP needs to show consistency in applying mitigation standards to public and private lands. The 2008 Final Mitigation Rule sets forth the standards that should be followed.

Actions that would be required to achieve recommendation:
Adherence to existing Federal Rule - state policy support.

Challenges to achieving recommendation:
Agreeing and implementing this policy change.

Additional supporting material:
Provisions §332.3 (a) (3);

Credits for compensatory mitigation projects on public land must be based solely on aquatic resource functions provided by the compensatory mitigation project, over and above those provided by public programs already planned or in place. All compensatory mitigation projects must comply with the standards of Section 332, if they are to be used to provide compensatory mitigation for activities authorized by Department of the Army (DA) permits, regardless of whether they are sited on public or private lands and whether the sponsor is a governmental or private entity.

332.7(a)(4)[§230.97(a)(4)] of the 2008 Final Rule also addresses potential alterations to compensatory mitigation projects on public lands that may result from changes in statutes, regulations, or agency needs or mission. This provision requires the public agency authorizing the incompatible use to provide alternative compensatory mitigation acceptable to the district engineer for any loss in functions resulting from the incompatible use.

Draft

For permittee-responsible mitigation projects, §332.7(d) (4) [§230.97(d) (4)] requires approval of any long-term financing mechanisms before the activity authorized by the DA permit is initiated. For third-party mitigation, provisions necessary for long-term management must be addressed in the instrument §332.8(u) [§230.98(u)]. For mitigation banks, long-term management is also addressed in §332.7(d) (3) [§230.97(d)(3)]. These provisions should apply both to mitigation projects on private and public lands.

Issues to address (such as cost, environmental impacts):
Adding the public sector to this Rule Making.

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County Government Workgroup

Introduction

The County Government Workgroup has prepared 12 recommendations which largely center on communication and cooperation with and between County Government, Municipalities, Citizens and Pipeline Operators. Through their Planning departments, Geographic Information System (GIS) resources and environmental authorities, Counties can play a vital role in the pipeline development process provided they are included in the process. The majority of our group believes that our recommendations will assist not only County and Local Governments and our constituents, but the operators as well.

Counties can often provide mapping and GIS data to operators. Information provided to counties by operators and Federal and State Governments can be shared with our municipalities and citizens. Counties want, and should have more communication with operators and a bigger role in planning how pipelines affect our communities.

Our first recommendation is that Counties continue to be engaged in the implementation of recommendations of the Task Force so that we can provide important resources and be able to respond to our constituents.

The remaining recommendations fall into the categories of Education and Shared Resources, Communication and Transparency, and Safety and Protection. It is likely that some of our recommendations may mirror, or perhaps conflict with, recommendations of other Workgroups: i.e. Siting and Routing, Local Government Group, etc. We would welcome the opportunity to work with those groups to finalize recommendations that make sense for all of the groups.

Some of the challenges in implementing some of our recommendations will be limited resources (personnel and funding), and legislative and/or regulatory action. We also recognize the importance of developing ongoing relationships with pipeline operators which will be needed to achieve many of our recommendations.

Our Workgroup voted on our recommendations and the results of that vote are included in our report. While the group believes that we have taken into account the concerns of the industry, our industry member disapproved of the majority of our recommendations. A follow-up e-mail was sent to that member further explaining our commitment to work with the industry to achieve our goals.

Draft

County Government Workgroup Recommendation #1

Counties Should Partner in Implementation of Task Force Recommendations

Full recommendation:
Counties must continue to be engaged with the state and the pipeline industry in the implementation of all recommendations pursuant to the release of the Task Force's report.

Relevant agencies:
County elected officials
County planning agencies
Emergency services agencies
Conservation districts
Other county agencies

Justification:
Counties want to be an ongoing partner as the oil and gas industry evolves, to assure they are able to offer input and resources as appropriate during the development process and able to best provide accurate and timely information to the communities they represent.

Actions that would be required to achieve recommendation:
Ongoing outreach from state agencies and the pipeline industry to counties.

Challenges to achieving recommendation:
None.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #2

Counties Should Include Pipelines Development in County Comprehensive Plans

Counties should include information about pipelines and pipeline corridors within their comprehensive plans, and should strongly encourage operators to use best practices, e.g., those provided by Pipelines and Informed Planning Alliance (PIPA).

Full recommendation:

1. Counties should have information about pipelines within their comprehensive plans.
   a. Where pipelines are in the community - mapping of all pipeline corridors and location of gathering lines as available - and types of pipelines should be included.
   b. Counties should implement best practices in communication and safety, such as those provided by PIPA.
   c. Counties should recommend best practices regarding well pad and pipeline siting as it relates to future land use to share with landowners and municipalities – i.e., counties' concerns relative to preserved land, the environment, future growth and development, impacts to agriculture, etc.
   d. Counties should be able to review and make recommendations in accordance with comprehensive plans similar to other types of development.
2. Develop a model ordinance/guidelines/considerations for municipalities to reference regarding setbacks, standards, environmental considerations (habitats, conservation easements/preserved land) as appropriate.

Relevant agencies:
County planning agencies
Emergency services agencies
Conservation districts
Water resources authorities
Health departments
Department of Community and Economic Development (DCED)

Justification:
Counties want, and should have, more communication with operators, and a bigger role in planning how pipelines affect their communities.

Actions that would be required to achieve recommendation:
Addendum to comprehensive plans in the intervening years, and incorporated into the comprehensive plans at the next update.

Challenges to achieving recommendation:
Acceptance by all counties, particularly those currently not impacted by pipeline infrastructure and development.

Additional supporting material:
PIPA – Partnering to Further Enhance Pipeline Safety In Communities Through Risk-Informed Land Planninghttp://www.ingaa.org/file.aspx?id=11683

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Pipeline Safety Trust – Landowner's Guide to Pipelineshttp://pstrust.org/wp-content/uploads/2014/07/pst_LandOwnersGuide_2014_forweb.pdf
Chester County Pipeline Notification Protocolhttp://www.landscapes2.org/pipeline/pnp.cfm

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #3

Counties Should Make GIS Mapping Available to Operators and Require Them to Provide Their Mapping to Counties and Municipalities

Full recommendation:

1. Make county GIS mapping available to operators and require operators provide their mapping to counties and municipalities.
2. Counties with GIS expertise should be sharing their information with commonwealth agencies that have a role or regulatory oversight in pipeline development, e.g., DEP, PUC and DCNR (Department of Environmental Protection, Public Utility Commission, and Department of Conservation and Natural Resources).

Relevant agencies:
County planning agencies
GIS departments/staff
Conservation districts

Justification:
Counties and municipalities want to make sure operators are using accurate maps, and that state and local governments are using a common mapping picture.

Actions that would be required to achieve recommendation:
Develop data sharing tools (e.g., a tool that provides a common platform) and license agreement templates that could make it easier to exchange the needed data.

Challenges to achieving recommendation:

- Some counties might require funding to generate up-to-date maps.
- A requirement for operators to provide mapping would need state and/or federal legislation.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #4

Develop Training Opportunities for County Officials

Full recommendation:
Training is needed for county planning departments, conservation districts, water resources authorities, solicitors, elected officials, and recorder of deeds to provide an understanding of the pipeline development process from start to finish and what they can do to be part of the process.

Relevant agencies:
DEP
DCNR
PUC
DCED
Federal Energy Regulatory Commission (FERC)
United States Army Corps of Engineers (USACE)

Justification:
Assure that counties have the information they need to be involved in the development process, and when they can participate.

Actions that would be required to achieve recommendation:
- Have the state identify subject matter experts (local groups, state agencies, federal partners, consulting firms, etc.) and create a central repository of these resources that counties and others can access.
- Have the state create a template for training (who should be invited, issues to cover, etc.).

Challenges to achieving recommendation:
- Mapping the pipeline development process and identifying subject matter experts.
- Cost to counties to have access to training opportunities.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #5

Develop Tools to Educate the Public on Pipeline Development

Full recommendation:

1. The state should develop and provide resources and templates that counties can utilize on the local basis with municipalities and the public, including landowners and surrounding communities, to provide an understanding of the pipeline development process from start to finish and what they can do to be part of the process.
2. Counties could consider providing neutral, non-legal information and/or web links specifically for affected landowners, such as questions to ask before entering into an agreement.

Relevant agencies:
DEP
DCNR
PUC
DCED
FERC
USACE
County planning agencies
GIS departments/staff
Conservation districts
American Planning Association – Pennsylvania Chapter (PA APA)
Pennsylvania Association of Conservation Districts (PACD)
County Commissioners Association of Pennsylvania (CCAP)
Pennsylvania State Association of Boroughs
Pennsylvania State Association of Township Supervisors (PSATS)

Justification:
Assure that municipalities and the public have the information they need to be involved in the development process, and when they can participate.

Actions that would be required to achieve recommendation:

- Have the state identify subject matter experts (local groups, state agencies, federal partners, consulting firms, etc.) and create a central repository of these resources that counties and others can access.
- Have the state create a template for training (who should be invited, issues to cover, etc.).

Challenges to achieving recommendation:

- Mapping the pipeline development process and identifying subject matter experts.
- Cost to counties to offer training opportunities.

Additional supporting material:
Chester County Pipeline Information Centerhttp://www.landscapes2.org/pipeline/pipelinemain.cfm

Pipeline Safety Trust – Landowner's Guide to Pipelineshttp://pstrust.org/wp-content/uploads/2014/07/pst_LandOwnersGuide_2014_forweb.pdf

Draft

County Government Workgroup Recommendation #6

Operators Should Engage in Timely Communication

Full recommendation:
Operators should notify counties and municipalities when initiating a project and provide information about proposed routes for transmission lines before the proposed route is finalized.

Relevant agencies:
County and municipal governments and agencies

Justification:
- Counties can provide input related to environment, land use, mapping and potential for shared rights of ways if they are aware of the proposed route.
- Residents will contact counties about the project and this will enable them to provide accurate responses and/or connect with the appropriate operator resource.

Actions that would be required to achieve recommendation:
Counties will have to develop relationships with operators to have them participate voluntarily. However, the legislature or a state agency should develop a law or regulation that compels operators to participate in this manner, in a way that does not conflict with operator concerns about confidentiality.

Challenges to achieving recommendation:
Operator concerns about confidentiality, lack of requirement for early notification by operators.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #7

Develop Advisory Standards for Pipeline Setback and Buffers

Full recommendation:
State should develop advisory standards for setbacks and buffers for pipelines which may be included in municipal ordinances and/or county hazard mitigation plans.

Relevant agencies:
PUC
DEP
DCED
Pennsylvania Emergency Management Agency (PEMA)

Justification:
- Public health, safety and welfare.
- Provides non-arbitrary standards on which municipalities and counties can base their recommendations.

Actions that would be required to achieve recommendation:
Agencies would be required to develop advisory standards.

Challenges to achieving recommendation:
Staffing and other resources needed by state agencies.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #8

Amend Municipalities Planning Code to Empower County Comprehensive Plan

Full recommendation:

1. Amendments to the Municipalities Planning Code to specifically identify pipelines as a land use element.
2. Legislation authorizing counties to enforce consultation zones or other best practices if the county chooses to adopt them.
3. Legislation which provides for county review of any new pipelines and associated facilities for consistency with the county comprehensive plan and consideration of county comments/ recommendations as part of the pipeline planning process.

Relevant agencies:
General Assembly, in consultation with counties

Justification:
County comprehensive plans should be taken into consideration as part of the pipeline planning process.

Actions that would be required to achieve recommendation:

- Legislative action.
- Addendum to comprehensive plan in the intervening years, and incorporated into the comprehensive plans at the next update.

Challenges to achieving recommendation:

Additional supporting material:
PIPA – Partnering to Further Enhance Pipeline Safety In Communities Through Risk-Informed Land Planninghttp://www.ingaa.org/file.aspx?id=11683
Pipeline Safety Trust – Landowner's Guide to Pipelineshttp://pstrust.org/wp-content/uploads/2014/07/pst_LandOwnersGuide_2014_forweb.pdf
Chester County Pipeline Notification Protocolhttp://www.landscapes2.org/pipeline/pnp.cfm

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #9

Require Shared Rights-of-Ways

Full recommendation:
State should establish a requirement to co-locate, to the extent possible, new pipeline infrastructure within existing or planned utility rights of ways (by regulation or statute), including other pipelines, electric transmission lines, etc. to reduce the impact on existing development, available land for development and natural resources, and to be consistent with the county comprehensive plan. Any requirement should include a maximum number of pipelines, regardless of product, in any single right of way.

Relevant agencies:
PUC and/or
General Assembly

Justification:
To reduce the impact on existing development, available land for development and natural resources.

Actions that would be required to achieve recommendation:
Statutory or regulatory development.

Challenges to achieving recommendation:
- Different standards among operators that may have implications for safety.
- Operator concerns about business competition.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #10

Empower GIS Mapping

Full recommendation:
Commonwealth should convene the Statewide Geospatial Board created under Act 178 of 2014 to help provide a way to efficiently understand from the community of stakeholders what mapping data exists regarding previously built pipelines, who has the data, as well as what mapping data is needed and how it can be acquired.

Relevant agencies:
Office of Administration - Statewide Geospatial Board

Justification:
Counties and municipalities want to make sure operators are using accurate maps, and that state and local governments are using a common mapping picture.

Actions that would be required to achieve recommendation:
Office of Administration to convene the first meeting of the Board.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #11

Create a Commonwealth Library of Pipeline Information

Full recommendation:
The Commonwealth should create a single repository for all information related to pipelines, including development process, contact information for regulatory agencies, best practices, subject matter experts, training opportunities, etc., so that local governments, as well as the citizens of the Commonwealth have access to information in one central location.

Relevant agencies:
As determined by the Commonwealth.

Justification:
To provide local governments as well as the citizens of the Commonwealth with access to information related to pipelines in one central location.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:
Funding, resources.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

County Government Workgroup Recommendation #12

Require Pipeline Abandonment Plans

Full recommendation:
State should establish a requirement (by regulation or statute) for pipeline operators to provide an abandonment plan as part of the pipeline's development process. The plan at a minimum should include notification to landowners, One Call and counties, and disposition plans.

Relevant agencies:
General Assembly and/or
PUC

Justification:
To limit any exposure for county government for being responsible for abandoned lines (similar to experience with rails to trails).

Actions that would be required to achieve recommendation:
Statutory or regulatory development.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Emergency Preparedness Workgroup

Introduction

The Emergency Preparedness (EP) workgroup is charged with developing best practices related to on-the-ground first response, and developing training programs for first responders in communities impacted by pipeline infrastructure development.

EP workgroup members provide a geographically-diverse representation and perspective on emergency preparedness. Member backgrounds include: environmental monitoring and occupational safety, regulatory compliance, county and municipal governance, first responder concerns, and emergency management planning and training. The following information provides a brief overview of the EP Workgroup's initial and subsequent discussions, information and materials provided by workgroup members, and the recommendations and best practices developed.

PEMA Director Richard Flinn, EP workgroup Chairman, convened the initial meeting and gave the mission and charge of the EP workgroup. A workgroup member provided a review of the overall mission of the Pipeline Infrastructure Task Force (PITF). A discussion ensued to capture clarity of the mission, including remarks from workgroup members on the unprecedented nature of this effort and the opportunity to balance the economic potential with responsible environmental stewardship.

In preparing for the EP workgroup discussion on the charge of providing recommendations and best practices, Director Flinn provided some structural guidance by relating effective procedures used in emergency preparedness planning and training associated with Marcellus Shale and Crude Oil by Rail (CBR). He recommended that workgroup members begin by reviewing current practices, tools, programs, training, and determining gaps to resolve. Multiple contributions were made during the dialogue exchange, including the discussion of existing publications, programs and grants available through the State Fire Academy (SFA), the Pipeline Hazardous Material Safety Administration (PHMSA), and the Pennsylvania State Association of Township Supervisors (PSATS); efforts by various counties and other states; and a recommendation to review the work conducted by the Pipelines and Informed Planning Alliance (PIPA).

It was noted by EP workgroup members that much of the information needed to recommend best practices is available and that "the group did not need to reinvent the wheel". Additional commentary centered on identifying those who need training; it was also noted that getting people to the existing training venues would need more consideration and perhaps marketing. The topic of diminishing fire department personnel, particularly in rural areas, would require consideration.

The workgroup discussed educational resources and noted the importance of well-defined definitions to address both legacy and planned pipeline terminology and technology. It became apparent that understanding the differences between gathering lines and transmission lines was more complex than assumed. Recommendations for developing a comprehensive list(s) of resource files, publications, products, and trainings were recognized.

Understanding the scope and locations of the pipeline infrastructure (including compressor stations) was discussed. Workgroup members believe that Geographic Information System (GIS) mapping technologies would need to be comprehensive and complete for purposes of risk analysis and the identification of planning and training gaps.

Developing a list of recommendations and best practices was accomplished through numerous information exchanges and in subsequent meetings. Several workgroup members recognized that a number of best practices and recommendations may be adopted and revised from the "Governor's Marcellus Shale Advisory Commission Report (Marcellus Report) dated 7/22/2011" – Section 9.3, Local Impact & Emergency Response. As many comments and recommendations were received, they were reviewed against the Marcellus Report and further developed through review and editing by workgroup members. Additional comments and recommendations not reflected in the Marcellus Report were added, and all recommendations were reviewed and vetted by workgroup members. The following is a list of recommendations as provided by the EP workgroup:

Draft

Emergency Preparedness Workgroup Recommendation #1

Standardize Emergency Response Plans

Full recommendation:
In coordination with Pennsylvania Emergency Management Agency (PEMA) and the Department of Environmental Protection (DEP), Emergency Response Plans (ERPs) for responding to pipeline infrastructure incidents should be standardized across the Commonwealth to ensure an acceptable level of expectation for safety and response coordination. The ERPs should be made available to the county emergency management coordinator, and shall include the well-pad or segments as appropriate to the end point of ownership. This plan shall include aerial view(s) of the site(s) for each well-pad and associated assets.

Draft

Emergency Preparedness Workgroup Recommendation #2

Train Emergency Responders

Full recommendation:
An enhanced effort to provide education and training for emergency responders will require marketing and oversight. The following recommendations were offered to assist with the diminishing pool of resources and provide access and interest in existing and new training opportunities:

- The development of a "Resource Book" is needed to help communities and first responders identify programs, training, classes, grants, and other opportunities from all sources to include PHMSA, PEMA, SFA, etc.

- Educational and training materials will be developed for delivery to and by fire departments (e.g., at monthly Safety Meetings). Information will contain notices of opportunities to secure additional training.

- PEMA will provide funding streams through various state and federal grants for sub-grantees (i.e., counties) to address planning and training needs.

- Explore new or emerging technology applications for remote training delivery.

- Encourage the Pennsylvania State Police (PSP) and other law enforcement organizations throughout the Commonwealth to attend pipeline awareness sessions, as they have a high likelihood of being first responders at a pipeline incident or may discover a release while on patrol.

Draft

Emergency Preparedness Workgroup Recommendation #3

Require Infrastructure Mapping

Full recommendation:
Infrastructure mapping shall be required as under HB 445 using PA1Call's Member Mapping System. Access to GIS data will support many planning and preparedness concerns, and GIS mapping is integral to response efforts. It will also assist in developing a risk assessment to determine impacts and needs with the ability to drill down to DEP Site ERPs. Line owners shall include all known facilities in this system, and shall be subject to the update provisions of the Underground Utility Line Protection Law (UULPL).

Draft

Emergency Preparedness Workgroup Recommendation #4

Coordinate Pipeline Mapping Plans

Full recommendation:
Efforts to partner with Pipeline, Oil & Gas Producers, Gas, Petroleum Products, and their derivatives shall make "best effort" to use *Best Practices API RP 80* and PIPA to reduce the impact on the environment and provide emergency responders with the training and information needed to handle pipeline emergencies on their facilities.

Efforts to coordinate planning, design, construction, and operation of these lines and facilities should be coordinated through the PA1Call Member Mapping System and its facility owners to reduce local impact and improve Public Safety. The "*PIPA Report*" is a comprehensive siting guide which has been adopted by PHMSA and supported by Industry and Advocacy Groups alike.

http://primis.phmsa.dot.gov/comm/publications/PIPA/PIPA-Report-Final-20101117.pdf#pagemode=bookmarks

Draft

Emergency Preparedness Workgroup Recommendation #5

PUC Should Develop a Comprehensive List of Pipeline Classifications

Full recommendation:
To develop a further understanding of and differences between line classifications (i.e., well, production, gathering, collection, transmission lines, etc.) and concerns related to legacy pipelines, it is recommended that the Public Utility Commission (PUC) work with PHMSA to define and publish a comprehensive list of line classifications.

Note: It is important to understand why distinguishing on-shore gathering lines is critical. Gathering lines are pipelines used to collect and transport natural gas from the well and related production facilities to transmission or distribution pipelines, which then transport the gas to a gas consumer, such as a residence or business. PHMSA safety regulations in 49 CFR 192 apply to the design, construction, operation, and maintenance of gathering, transmission, and distribution pipelines. However, the regulations do not cover production facilities or on-shore gathering lines in locations outside cities, towns, villages, or designated residential and commercial areas (hereinafter "rural locations") (§ 192.1(b)(4)).

Note: Pennsylvania has no unincorporated area, and therefore should have no pipelines exempt from industry standards for pipeline safety and construction.

Draft

Emergency Preparedness Workgroup Recommendation #6

Enhance Emergency Response Training for Responder Agencies

Full recommendation:
Identify, coordinate, and provide regular training for integration with existing specialized response capabilities (public/private) to enhance incident management and unified command practices capable of immediate response to an incident anywhere in the Commonwealth. The responding agencies will focus on ensuring public safety by isolating and securing the incident site while leaving fires or releases to professional, trained experts utilizing equipment staged for that purpose in a manner to provide a timely response to emergencies.

Draft

Emergency Preparedness Workgroup Recommendation #7

Create County/Regional Safety Task Forces

Full recommendation:
Establish county/regional safety task forces utilizing public/private partnerships comprised of public officials, local emergency responders, industry representatives, and other experts to facilitate coordination, knowledge sharing, planning, and emergency response protocols.

Draft

Emergency Preparedness Workgroup Recommendation #8

Provide Training to Local Emergency Responders

Full recommendation:
Provide comprehensive training to local fire and emergency responders, focused on the unique situations presented from natural gas-related and other pipeline emergencies, and assist in the identification and acquisition of appropriate materials, through a program overseen and administered by the Office of the State Fire Commissioner (OSFC). Training efforts should always take advantage of ongoing industry-provided training.

Note: The OFSC oversees the training, operational, and informational purposes of the Commonwealth's fire and emergency services community. The number of volunteer fire and emergency service providers in Pennsylvania has decreased substantially in recent years, from over 300,000 in the 1970s to approximately 60,000 today.

Draft

Emergency Preparedness Workgroup Recommendation #9

Assess Need for Additional Training for Local Responders

Full recommendation:
Assess the need for additional fire, emergency response, and hazardous materials training; personnel; and preparation based on mapping of the proposed pipeline infrastructure and related facilities.

Note: Act 165, *as amended*, known as the Hazardous Material Emergency Response and Planning Act, governs emergency response to releases of hazardous materials from facilities and transportation-related accidents.

Draft

Emergency Preparedness Workgroup Recommendation #10

Establish Protocol for Emergency Movement of Heavy Equipment during Off-Hours

Full recommendation:
The Pennsylvania Department of Transportation (PennDOT), in cooperation with PSP, should establish a protocol for the emergency movement of heavy equipment during off-hours (evening, night, and weekends) which must be dispatched to a location in immediate need of the equipment.

Draft

Emergency Preparedness Workgroup Recommendation #11

Assigning a 9-1-1 Address to Pipeline-Related Facilities

Full recommendation:
Related facilities (compressor stations, etc.) should be assigned a 9-1-1 address for emergency response purposes. Gas operators should be required to provide GPS coordinates for access roads and related facilities, and post this information, along with appropriate emergency response contact information, in conspicuous location(s) at the related facilities.

Draft

Emergency Preparedness Workgroup Recommendation #12

Authorize a Fee for Emergency Response to Pipeline Incidents

Enact or authorize the imposition at a fee for the purpose of mitigating the additional financial impacts borne by emergency response organizations from the development and operation of pipelines within their response areas.

The imposition of any fee should be accommodated by appropriate statutory changes to ensure fair and consistent municipal regulation which does not unreasonably impede the development of the pipeline infrastructure. Any fee should include a correlation between the amount of the fee and cost incurred, should recognize the ongoing nature of certain impacts, and should be done in a manner that does not discourage maintaining or expanding partnerships between pipeline operators and local communities.

Impacts identified by the PITF as appropriate for compensation include, but are not necessarily limited to:

a. Local emergency response, planning, coordination, training, equipment acquisition, communication, and implementation;
b. Public safety, including police and fire protection;
c. State-administered emergency response training, planning and coordination;
d. [Note to DEP: other items not included from the Marcellus Report 9.3.9, not EP-related, may be appropriate additions to final report]

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Emergency Preparedness Workgroup

Best Practices

Relative to best practices, the EP workgroup has identified an extraordinary number of references, articles, programs, case studies, and links which all stakeholders should find complementary to establishing a comprehensive set of best practices in developing standards.

1. *Common Ground Alliance Best Practices 12.0*, published March 2015 has a considerable number of recommendations ranging from planning and design to one call centers, mapping and public education and awareness. The following references are provided as examples:

    a. PA1Call Center: To enhance awareness of responsibilities to safeguard workers and the public and protect the integrity of the buried infrastructure.
    b. Data Reporting and Evaluation: References for facility owners/operators, locators, excavators, or stakeholders with an interest in underground damage prevention.
    c. Information Sharing: Addresses Homeland Security concerns for all parties who must ensure that such information is shared only with individuals who truly require this critical information

    Note: "**Common Ground Alliance Best Practices**" refers to the damage prevention industry recommended standards issued by the Common Ground Alliance, a not-for-profit corporation created pursuant to the issuance of the 1999 U.S. Department of Transportation's Common Ground Task Force report.

    "**Emergency**" means a sudden or unforeseen occurrence involving a clear and immediate danger to life, property and the environment, including, but not limited to, serious breaks or defects in a facility owner's lines. (PA UULPL ACT 287 *as amended* 2008).

2. PA1Call System submitted the following links to share with the EP workgroup members. The information may help the group in preparing the report. http://www.firefighternation.com/article/hazardous-material-cbrn/pipeline-emergency-planning-response-tools.

3. The construction and operation of the vast network of pipelines are regulated by the U.S. Department of Transportation's PHMSA. Workgroup members can research additional information by visiting PHMSA's homepage at**Error! Hyperlink reference not valid.** and PHMSA's Stakeholder Communications website at http://primis.phmsa.dot.gov/comm.

4. Social Media use in emergency preparedness continues to grow, especially with Twitter and Facebook. The First Responder Community of Practice (FRCOP) website, https://communities.firstresponder.gov/web/guest/home offers a great resource and insight to the strength of this communication medium.

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5. PUC submitted the following link to be reviewed by workgroup members: http://www.ferc.gov/media/news-releases/2015/2015-3/07-28-15.asp#.VdErgmBRGUk.

6. The Federal Energy Regulatory Commission (FERC) posted guidance on best practices for stakeholder outreach programs for natural gas projects. The document, *Suggested Best Practices for Industry Outreach Programs to Stakeholders*, was prepared by FERC's Office of Energy Projects. The document presents common practices and highlights tools that FERC-regulated natural gas companies can use to effectively inform and engage stakeholders.

7. Fresno, California 12" Accident: http://www.usatoday.com/story/news/2015/04/17/fresno-gas-pipeline-explosion/25969507/

8. Pacific Gas and Electric Company Natural Gas Transmission Pipeline Rupture and Fire, San Bruno, California: http://www.ntsb.gov/news/events/Pages/Pacific_Gas_and_Electric_Company_Natural_Gas_Transmission_Pipeline_Rupture_and_Fire_San_Bruno_California.aspx

9. Preparedness for Navigable Waterways: http://www.camogroup.org/GulfSafe-CAMO-4-28.pptx

10. U.S. Department of Transportation - *The State of the National Pipeline Infrastructure* http://opsweb.phmsa.dot.gov/pipelineforum/docs/Secretarys%20Infrastructure%20Report_Revised%20per%20PHC_103111.pdf

11. PHMSA – Pipeline Emergency Official Web Page:
    a. http://primis.phmsa.dot.gov/comm/EmergencyOfficials.htm?nocache=2277
    b. http://primis.phmsa.dot.gov/comm/publications/PIPA/PIPA-PipelineRiskReport-Final-20101021.pdf

12. Marcellus Shale Coalition (MSC) – Pipeline Emergency Responder Statement: http://marcelluscoalition.org/marcellus-shale/community/

13. Pipeline Association for Public Awareness (PAPA) - Industry group with a wealth of Pipeline Safety information available: http://www.pipelineawareness.org/featured-video-pipelines

14. MSC - Recommended Practices: http://marcelluscoalition.org/category/library/recommended-practices/

15. National Association of State Fire Marshals (NASFM) – Pipeline Emergencies: http://www.pipelineemergencies.com/

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16. PHMSA - Gathering Line FAQs: http://phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=4351fd1a874c6310VgnVCM1000001ecb7898RCRD&vgnextchannel=f7280665b91ac010VgnVCM1000008049a8c0RCRD&vgnextfmt=print

17. PHMSA Pennsylvania Page "Regulated" Pipeline Data: http://primis.phmsa.dot.gov/comm/StatePages/Pennsylvania.htm

18. PHMSA Public Service Announcement (PSA) Banner: http://phmsa.dot.gov/pipeline/library/pipeline-safety-awareness-archive/psa-banner

19. PAPA Homepage: The PAPA promotes open communication and cooperation with local organizations to enhance public safety, improve emergency preparedness, protect the environment, and prevent damage to property and facilities: http://www.pipelineawareness.org/

20. Pipeline Education – Basics: http://www.pipeline101.com/

21. Pennsylvania One Call System, Inc. (dba PA 811)
    Pipeline Safety Awareness & Emergency Response Programs - Statewide Education Program Schedule (Annual) – has been provided for more than 30 years to Emergency responders funded by PA1Call's Pipeline Members:
    a. http://www.pa1call.org/PA811/Public/POCS_Content/News/2015_Pipeline_Safety_Awareness_Programs.aspx
    b. www.paonecall.org/pipelinesafety

22. Pipeline Safety Trust – Washington-based nonprofit pipeline safety advocacy group founded post Bellingham, WA pipeline incident in 1999 that involved 3 fatalities:
    a. http://www.pstrust.org - Basic info
    b. http://pstrust.org/wp-content/uploads/2014/11/PST-Newsletter-Fall2014.pdf
    c. http://pstrust.org/wp-content/uploads/2013/03/pstNewsletter_November_Final.pdf
    d. http://pstrust.org/wp-content/uploads/2013/04/Pennsylvania-owners-guide-2011.pdf
    e. http://pstrust.org/docs/LandownersGuideFinalReport.pdf
    f. http://pstrust.org/wp-content/uploads/2013/10/PST-Govt-Guide-Pipelines-2014-web.pdf
    g. http://pstrust.org/trust-initiatives-programs/planning-near-pipelines/

23. Texas Organization – affiliated with Common Ground Alliance (CGA): http://pipeline-safety.org/ Common Ground Alliance

24. CGA – Organization founded in 2000 after the Common Ground Study commissioned by Congress.

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a. *Best Practices, Version 12.0.* Compilation of industry practices compiled by more than 70 volunteer industry participants and updated annually: http://commongroundalliance.com/best-practices-guide.
b. *Vault Technology Library* is an online damage prevention technology information source that serves as a tool to easily locate and review technologies by technology category, CGA best practice, related root causes, and stakeholder group. VAULT is used to find technologies that help reduce damage to underground utility facilities.
c. *811 Toolkit*: 811, the three-digit number to call before you dig, continues to make an impact on the damage prevention community, and you and your organization can help. You can protect yourself, your business and your customers by incorporating the 811 logo into your existing campaigns or by downloading elements of the national awareness campaign. http://commongroundalliance.com/damage-prevention/toolkits/811-campaign#sthash.QarvVN11.dpuf
d. *Advocacy Resource Library -* The stakeholder advocacy toolkit includes documents available to assist stakeholders in discovering best practices that have already been identified through the CGA, case studies describing legislative activities that have taken place recently in some states, and a list of states that have current legislative activity indicated, as well as contact information for stakeholder groups that would be beneficial to engage in the process of building a legislative coalition with your state. http://commongroundalliance.com/damage-prevention/toolkits/stakeholder-advocacy-resources#sthash.sZBRApWs.dpuf
e. *Damage Information Reporting Tool (DIRT) Report 2014*: CGA's annual DIRT report provides a summary and analysis of events: http://commongroundalliance.com/media-reports/dirt-reports#sthash.SkLdXrcq.dpuf

25. American Petroleum Institute
    a. *API RP 1162* – Standards for pipeline Safety Damage Prevention Programs – 9 Elements: http://publications.api.org/documents/1162%20e2-PubAcc/html5.html
    b. *API RP 80* – Standards for On Shore Gathering Lines

Draft

Environmental Protection Workgroup Recommendation #1

Establish Early Partnerships and Coordination in Relationships with Regulatory Agencies

Full recommendation:
The project sponsors should reach out to representatives of regulatory jurisdictions as early as possible to gather input for consideration during project planning. These groups may include local municipalities, county governments, including: planning commissions and conservation districts, river basin commissions, and state and federal regulatory agencies.

Relevant agencies:
Department of Environmental Protection (DEP)
Pennsylvania Fish and Boat Commission (PFBC)
Pennsylvania Game Commission (PGC)
Pennsylvania Department of Conservation and Natural Resources (DCNR)
Susquehanna River Basin Commission (SRBC)
Delaware River Basin Commission (DRBC)
United States Fish and Wildlife Service
United States Army Corps of Engineers (USACE)
Local Governments and Conservation Districts

Justification:
When early partnerships and coordination relationships are established it can assist project sponsors in identifying and avoiding sensitive resources, as well as increase the predictability of regulatory approvals through the life of the project. While certain regulatory coordination relationships are established and mature, each project brings differing issues and early coordination between applicable agencies is essential towards effective and efficient regulatory processes.

Actions that would be required to achieve recommendation:
Project sponsor focus on partnerships and pre-planning with jurisdictional agencies.

Challenges to achieving recommendation:
When multiple agencies are involved, scheduling meetings to collectively discuss a project can be difficult to achieve.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Timing and predictability

Draft

Environmental Protection Workgroup Recommendation #2

Establish Early Coordination with Local Non-Governmental Groups

Full recommendation:
The project sponsors should contact groups such as local and nationally recognized groups affiliated with natural resource preservation and protection. These groups may include local watershed groups, conservancies, land trusts, environmental advocates, and environmentally minded organizations, councils and societies. Early coordination and outreach to establish a partnership with these groups focused on natural resource protection is invaluable.

Relevant agencies:
Land trusts
Watershed groups
Conservancies
Environmentally minded organizations
Councils and Societies

Justification:
Early identification of local concerns is a benefit in the planning process. It allows the opportunity to solicit and incorporate local input into the planning process, which can be a valuable time savings to make project adjustments to address concerns as identified.

Actions that would be required to achieve recommendation:
Provide a directory of relevant groups in Pennsylvania with their contact information to the project sponsors.

Challenges to achieving recommendation:
The groups may not be staffed to offer pipeline project environmental review.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #3

Establish Early Coordination with Local Landowners and Lessors

Full recommendation:
The project sponsors should communicate with landowners and educate them on the regulatory requirements faced by the pipeline operator during construction and after construction for long term operations and land use issues.

Relevant agencies:
DEP
PFBC
PGC
DCNR
SRBC
DRBC
USACE
U.S. Fish and Wildlife Service
Local Governments
Conservation Districts

Justification:
Typical landowners have a considerable lack of understating in regards to the regulatory obligations of the project sponsor during pipeline construction and operations. Early and increased communication and education can help minimize third-party impacts to right-of-way (ROW) prior to restoration and during long term operations.

Actions that would be required to achieve recommendation:
Project sponsors should focus on outreach programs as early as possible to educate landowners. Local and State regulatory agencies should also make efforts to educate the public on the requirements of their regulatory programs.

Challenges to achieving recommendation:
To be effective, message delivery should to be multi-faceted (public meetings, mailings, etc.). Using multiple delivery vehicles can be costly and time consuming. It is recommended to incorporate these messages into existing outreach programs where possible.

Additional supporting material:
http://www.ingaa.org/File.aspx?id=19618

Issues to address (such as cost, environmental impacts):
Reaching landowners who disregard the regulatory obligations.

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Environmental Protection Workgroup Recommendation #4

Project Sponsors Should Review Pennsylvania Stormwater BMP Manual

Full recommendation:
DEP should ensure that the Pennsylvania Erosion and Sediment Control Manual is continuously updated and stays current, including adding alternative BMPs approved by DEP and new leading BMPs.

Relevant agencies:
DEP
Conservation districts
Local governments

Justification:
The project sponsors have to review, utilize and implement BMPs and standards in the Pennsylvania Erosion and Sediment Control Manual. BMPs, when designed according to these standards, and properly implemented and maintained, are expected to minimize the potential for accelerated erosion and sedimentation, and at the same time to protect, maintain, reclaim and restore water quality and existing and designated uses of surface waters.

The March 2012 manual contains a selection of performance oriented BMPs that minimize accelerated soil erosion and sedimentation associated with temporary earth disturbance activities. Much of the design criteria and supporting calculations have already been developed and provided in the manual.

Alternate BMPs that are not listed in this manual but that provide the same (or greater) level of protection may also be used to attain the regulatory standard. It is incumbent on the person proposing the use of alternative BMPs to demonstrate their effectiveness with appropriate test results or other documentation.

Actions that would be required to achieve recommendation:
DEP staff would need to develop a method for efficiently updating the manual, including a way to provide a better process to make available and distribute alternative BMPs that are not listed in the manual, but that have already been approved by DEP to use by others.

Challenges to achieving recommendation:

Additional supporting material:
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf

Issues to address (such as cost, environmental impacts):
Cost and staffing needs to keep the Pennsylvania Stormwater BMP Manual up to date and current with new BMPs to utilize.

Draft

Environmental Protection Workgroup Recommendation #5

Sponsors Should Review the Pennsylvania Erosion and Sediment Pollution Control Program Manual

Full recommendation:
The project sponsors should review, utilize and implement BMPs and standards in the Pennsylvania Erosion and Sediment Control Manual. BMPs, when designed according to these standards, and properly implemented and maintained, are expected to minimize the potential for accelerated erosion and sedimentation, and at the same time to protect, maintain, reclaim and restore water quality and existing and designated uses of surface waters.

Relevant agencies:
DEP
Conservation districts
Local governments

Justification:
The March 2012 manual contains a selection of performance oriented BMPs that minimize accelerated soil erosion and sedimentation associated with temporary earth disturbance activities. Much of the design criteria and supporting calculations have already been developed and provided in the manual.

Actions that would be required to achieve recommendation:
Alternate BMPs that are not listed in this manual but that provide the same (or greater) level of protection may also be used to attain the regulatory standard. It is incumbent on the person proposing the use of alternative BMPs to demonstrate their effectiveness with appropriate test results or other documentation.

To provide a better method to make available and distribute alternative BMPs that are not listed in the manual, but that have already been approved by DEP to use by others.

Challenges to achieving recommendation:
Ensuring that the Pennsylvania Erosion and Sediment Control Manual stays current and has alternative approved BMPs and new leading BMPs added on a regular basis.

Additional supporting material:
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf

Issues to address (such as cost, environmental impacts):
The ability to keep the Pennsylvania Stormwater BMP Manual up to date and current with new BMPs to utilize.

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Environmental Protection Workgroup Recommendation #6

Sponsors Should Request Pre-Application Meetings with Regulatory Agencies

Full recommendation:
The project sponsor should request a pre-application meeting, as required, as early in the process as possible, especially for transmission mains and for larger projects or projects with significant environmental impacts. For larger projects with potentially significant environmental impacts combining pre-application meetings with various Departments, agencies, offices and programs is recommended. A pre-application meeting is the foundation for improved understanding and communication between the potential applicant and the regulatory agencies.

Relevant agencies:
DEP
All other applicable state, federal, local and regional permitting agencies

Justification:
A pre-application meeting is the foundation for improved understanding and communication between the potential applicant and the regulatory agencies. The pre-application meeting allows the agencies, consultant and applicant to discuss project details and seek clarification on applicable regulatory and statutory requirements.

For the applicant and the applicant's consultant, the time invested in a pre-application meeting pays dividends in the form of complete and technically adequate submissions, and shorter processing times resulting from a better understanding of the project and complicated matters prior to application submission. Further, these meetings are critical and highly recommended when large scale, multi-permitted facilities are involved and spans multiple counties or, or if federal permit coordination will be required.

In many cases, permit applications are complicated and challenging, due to the relationship of the numerous and overlapping environmental laws and regulations. Therefore, it is strongly recommended that applicants employ consultants with expertise in the areas of environmental permitting to aid in completion of permit applications.

Actions that would be required to achieve recommendation:
Applicants and their Consultants are responsible for:

- Contacting regulatory agencies as soon as it is possible to provide a description (project summary, maps, etc.) of the proposed project, and requesting a pre-application conference.
- Remaining in contact with the agencies throughout the development of the project details and technical design will ensure a thorough understanding by agency staff, assure adherence to applicable regulatory and statutory requirements to gain insight into potential regulatory concerns that could delay
- Applicants should also incorporate sufficient time into their project schedule to allow for receipt of all permits and approvals prior to commencing construction and that the

agencies will not begin its technical review of an application until the submission is administratively complete.

Challenges to achieving recommendation:
DEP does not have the staff to hold a pre-application meeting for all projects. Proper thresholds need to be applied to have pre-application meetings for larger projects and projects with significant potential environmental impacts.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

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Environmental Protection Workgroup Recommendation #7

Sponsors Should Perform Alternatives Analysis to Avoid/Minimize Impacts

Full recommendation:
For all infrastructure potentially impacting significant and sensitive environmental resources, the project sponsor should perform a detailed alternatives analysis with the goals of avoiding and minimizing disturbances to areas requiring significant or sensitive environmental protection or water resource protection and identifying best construction techniques practicable, given the required pipe diameter (for pipeline projects), site and soil conditions and safety requirements.

Relevant agencies:
DEP
All other applicable state, federal, local and regional permitting agencies

Justification:
Alternative analyses would help ensure that goals towards avoiding or minimizing disturbances to environmentally sensitive resources have been fully considered and implemented, where feasible.

When the project is in an exceptional value (EV) watershed, crossing a large wetland (10 acres in size) a Joint Permit Application (JPA) is required. A component of the JPA is to provide an alternative analysis.

Actions that would be required to achieve recommendation:
For larger projects and projects involving transmission or multiple gathering mains, the project sponsor should develop a landscape level plan (Landscape Level Planning BMP).

Challenges to achieving recommendation:
The pipelines are generally placed where the landowner wants it on his/her property and based on the well pad location that needs to be gathered. For routine production and gathering pipelines, pipeline routing will be constrained by landowner and lease requirements and an alternatives analysis may not yield any significant changes. Proper thresholds need to be developed and implemented to balance this BMP, which may not be applicable to all projects.

A**dditional supporting material:**

Issues to address (such as cost, environmental impacts):
- Thresholds
- Future facilities

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Environmental Protection Workgroup Recommendation #8

Develop Standard Water Quality Monitoring Practices

Full recommendation:
It is recommended that practices be developed between DEP, industry, and related stakeholders to:

- Identify reasonable water quality parameters that can consistently and reliably be used to monitor and assess indications of significant changes in water quality.
- Identify sustainable methods for the DEP to develop a water quality baseline for waters that could potentially impacted by pipeline and infrastructure development.
- Develop long term and sustainable sampling plans with the goal of identifying potential significant changes in water quality directly related to land development, including natural gas infrastructure development.
- Develop partnerships with industry, universities, DEP and other independent research groups to review the potential water quality impacts associated with pipeline infrastructure projects to include specific pre-construction and post construction sampling both upstream and downstream of areas of disturbance at streams and waterways.
- Identify methods to ensure quality assurance, quality control and interpret water data to the public.

Relevant agencies:
DEP
DCNR
PFBC

Justification:
The collection of baseline and relevant field level water quality data will support environmental monitoring and assessment and help to inform interested parties of existing conditions, pre-development conditions and any potential short term and longer terms impacts to water quality. Turbidity, conductivity and macroinvertebrates are some suggested indicators of potential impacts.

Actions that would be required to achieve recommendation:
The DEP would need to develop guidance on typical sampling protocols and Quality Assurance/Quality Control (QA/QC) methods to ensure consistency of approach and validity of data collected.

Guidance should also be provided where known special issues could require additional monitoring, such as in areas of disturbance of known or suspected contamination or in areas that could impact impaired waters.

Challenges to achieving recommendation:
There are several challenges to this recommendation including:

- The need to develop reasonable thresholds where water quality monitoring is needed such as:

    - For transmission mains.
    - In EV and Hazard Quotient (HQ) watersheds.
    - Near drinking water intakes
- Cost and time of potentially intensive sampling and analysis.
- Defining and separating the water quality impacts related to other activity, for example significant rainfall events or lack of rainfall, or other activities within the watershed such as urbanization and other land development, agriculture.
- Scheduling preconstruction sampling during the proper "baseline" seasons.
- Determining responsible parties for sampling, analyses of water quality samples, macroinvertebrate assessments.
- Interpreting data for the public. If all data are public, do they get just the data or an interpretation of the data as well?
- Funding and sources of funding for this work.

Additional supporting material:
The concept of monitoring and assessing water quality has been adopted by many as a part of foundational environmental protection programs. U.S Environmental Protection Agency (EPA) and their state delegates monitor and assess water quality under the Clean Water Act. Pennsylvania Act 13 of 2012 suggest a "predrilling" water quality survey of water supply wells to allow for monitoring, assessment and ligation defenses, related to natural gas drilling and claims of related pollution impacts.

Issues to address (such as cost, environmental impacts):
In the absence of a defined and coordinated water quality monitoring program, stakeholder and other related interests are expected to "fill the void" with alternative sampling, data and interpretation.

Determining:
- Whether water quality assessment is to be done via grab samples vs continuous monitoring.
- Taxonomic level of macroinvertebrate identification.

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Environmental Protection Workgroup Recommendation #9

Develop An Advanced High-Quality Environmental Resources Planning Tool

Full recommendation:
In addition to Pennsylvania Natural Diversity Inventory (PNDI), the Commonwealth, should develop an advanced planning toolbox to identify, map and publish information on HQ and Sensitive Environmental Resources state-wide.

Relevant agencies:
DEP
DCNR

Justification:
An advanced tool with capability beyond PNDI screening would allow planning for additional conservation and environmental resource layers that can be used for evaluating infrastructure and development across the state.

Actions that would be required to achieve recommendation:
Development of source data and development of sustainable processes to ensure the tool is kept up to date.

Challenges to achieving recommendation:
Scope and funding are significant. The PNDI model has been successful and this tool could build upon that success to provide more advanced planning data.

Additional supporting material:
http://www.portal.state.pa.us/portal/server.pt/document/1548991/paconservationexplorer_dep_cac_sept2015_draft_pdf

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #10

Sponsors Should Use Landscape Level Planning

Full recommendation:
The project sponsor should develop and maintain a landscape level plan in Geographic Information System (GIS) and tabular format that can be used for: alternatives analyses; regulatory meetings and coordination; stakeholder meetings and coordination; and public meetings and coordination. The landscape level plan shall identify and inventory all significant and sensitive environmental resource protection elements and display related impacts to resources in plan (GIS) and tabular format. The plan should include current and known future infrastructure. The inventory should identify the areas of both temporary and permanent disturbance and areas that are included in defined "co-location" areas (prior disturbances or existing rights or way).

Relevant agencies:
DEP
Soil conservation Districts
Other state federal and regional agencies.

Justification:
The early action landscape level planning will allow for better decision making by the project sponsor as alternative routes are reviewed and/or proposed with the goal of avoiding or minimizing impacts to environmentally sensitive resources. The plan will allow the agencies to compare and normalize impacts across various projects.

Actions that would be required to achieve recommendation:
In addition to the PNDI Environmental Review Tool, the Commonwealth should to develop an advanced environmental conservation and planning tool and resources for project sponsors and related stakeholders to identify environmentally sensitive areas. Practices need to be developed to define and identify land, water and air environmental resource elements to be inventoried and mapped.

Challenges to achieving recommendation:
It recommended that thresholds be considered for the types of projects or the type of potential impacts that would result in the need for landscape level planning. At the transmission line level, this should be standard practice. At the gathering line level, land owner (lease holder) requirements may have a significant impact on the route selection and may limit alternatives and should be considered.

Additional supporting material:
Comprehensive landscape level planning has been proposed in other jurisdictions as best practice and in regulations. Maryland's Interim Final Best Practices Report considers landscape level planning for all gas related infrastructure.
http://www.mde.state.md.us/programs/Land/mining/marcellus/Documents/7.10_Version_Final_BP_Report.pdf

Draft

Environmental Protection Workgroup Recommendation #11

Minimize Water Withdrawals for Testing

Full recommendation:
The project sponsor should minimize direct water withdrawals for testing wherever possible and approved existing water sources be used for testing. If water withdrawals are required, they should be conducted consistent with state, SRBC and/or DRBC requirements as applicable, and in a manner that prevents the introduction and spread of aquatic invasive species. Surface water withdrawals should not be conducted in intermittent streams and should be avoided in headwaters 1st order streams. Surface water withdrawals should consider potential impacts to downstream users, especially public water supplies and drinking water supplies. Groundwater withdrawal should consider impacts to other users in the same hydrogeological features, especially public water supplies and drinking water supplies. Water used for hydrostatic testing shall be interruptible, as required during emergencies or droughts. All water use should be metered.

Relevant agencies:
DEP
All other applicable state, federal, local and regional permitting agencies, including DRBC and SRBC

Justification:
Water used for pipeline and other infrastructure should not cause undue interference or should not cause significant impacts to water resources or other water users.

Actions that would be required to achieve recommendation:
Project sponsors should seek to determine and utilize existing and approved water supplies for their temporary or permanent needs, if feasible.

Challenges to achieving recommendation:
Water withdrawals should not be considered to be "prohibited" for these uses and there is no recommendation to revise any existing laws or authorities. As such, project sponsors reserve their rights to use water similar to any other users; however, it is best practice to use existing water sources, if available.

A**dditional supporting material:**
Pennsylvania Water Rights Law of 1939
http://www.legis.state.pa.us/WU01/LI/LI/US/PDF/1939/0/0365..PDF
DRBC Project Review (as applicable)
http://www.nj.gov/drbc/programs/project/
SRBC Project Review
http://www.srbc.net/programs/projreview.htm

Issues to address (such as cost, environmental impacts):

Environmental Protection Workgroup Recommendation #12

Do Not Locate Pipelines Parallel to Streams Within its 100-Year Floodway

Full recommendation:
Following Chapter 105, it is recommended that pipelines not be located parallel to a stream within its 100-year floodway. DEP should assess whether the current 25' setback is sufficient as a minimum distance.

Relevant agencies:
DEP
County Conservation District

Justification:
Recommendations to prevent the construction of pipelines that closely parallel streams are already in Chapter 105. This recommendation recognizes that some pipelines will parallel streams – but only at a distance from the watercourse where it does not pose a threat to the stream.

Actions that would be required to achieve recommendation:
Incorporate into Stormwater Best Management Practice (BMP) Manual.

Challenges to achieving recommendation:
Concern as to whether current 25' setback is sufficient to protect streams. Anything more restrictive will likely require regulatory changes.

Additional supporting material:
Section 105.314 states: "Pipelines along streams shall be located a sufficient distance away from the bank to prevent damage to the bank as a result of erosion; pipelines shall be located a minimum of 25 feet away from the streambank unless other erosion protections measures are approved by the Department."

Issues to address (such as cost, environmental impacts):
Concern over whether 100-year recurrence interval is most appropriate. Defining a setback for streams where a Federal Emergency Management Agency (FEMA) study is not in place.

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Environmental Protection Workgroup Recommendation #13

Employ Smart Timing of Construction

Full recommendation:
The project sponsor should avoid or minimize significant field activity during periods or seasons of known special environmental, water resource sensitivity, or human activity (planting / harvesting), as well as times of the year most susceptible to freeze/thaw, erosion/sedimentation issues and trouble with obtaining stabilization.

Relevant agencies:
DEP
County Conservation District

Justification:
Due to the seasonal climate of Pennsylvania, not all seasons are conductive to construction. In general late fall, winter, and early spring are not suitable for pipeline placement due to frozen or excessively waterlogged soils. Moreover, spring or fall may be unsuitable due to planting or harvesting activities on agricultural fields.

Actions that would be required to achieve recommendation:

- Arrange a meeting with DEP and other resource agencies to better identify times of year when pipeline construction is not feasible.
- Perhaps develop a matrix to show how timing might be affected by geography, geology, surrounding land use.

Challenges to achieving recommendation:

Additional supporting material:
http://www.nature.org/ourinitiatives/regions/northamerica/areas/centralappalachians/recommended-shale-practices-overview.pdf

Issues to address (such as cost, environmental impacts):
Concern that no time of year may be suitable to pipeline construction. This recommendation would need to be adjusted to site conditions.

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Environmental Protection Workgroup Recommendation #14

Assess Potential Subsurface Hazards in Planning

Full recommendation:
Using a qualified professional, such as Professional Engineers (PE), Professional Geologist (PG), Environmental Resource Manager, Surface or Underground Mine Inspector, or an environmental professional with experience in abandoned mine reclamation and mining, the project sponsor should evaluate and consider potential impacts in areas of current mining, past mining, or other resource extraction industries, such as the aggregate industries (limestone quarries-for example, karst topography) and the potential for sinkhole development or dissolution of limestone in areas that could become subsidence prone areas or areas that can lead to inadvertent returns. Areas that are prone to mine subsidence and mine fires should be closely evaluated either by assessing publically available information, or by test borings. The sponsor should avoid areas where cropfalls and highly fractured faulting occur on steep slopes, and should research available documents and mapping to avoid creating additional mine discharges that could surface and overflow to the land. Boring might be problematic in certain circumstances.

Relevant agencies:
DEP, Bureau of Abandoned Mine Reclamation (BAMR)
DEP, Mine Subsidence Insurance Program
DEP, Bureau of Active Mining Operations
DEP, Bureau of Deep Mine Safety
DEP, Bureau of District Mining Operations
US Department of Interior
Office of Surface Mining Reclamation and Enforcement (Federal)
Mine Safety Health Administration (Federal)
Eastern PA Coalition for Abandoned Mine Reclamation (non-profit)

Justification:
Some areas of Pennsylvania are underlain by highly porous/unstable rock formations caused by natural or human activity – particularly mining. Such rock formations may present hazards to pipeline stability and integrity. The potential for underground mine pool groundwater contamination could become especially significant should an accident occur or locating pipelines in areas where active mine fires are located beneath the surface posing an enhanced risk of mine subsidence.

Actions that would be required to achieve recommendation:
Coordination and review among the State and Federal agencies, with local support provided by Eastern Pennsylvania Coalition of Abandoned Mine Reclamation (EPCAMR) serving as a resource organization to review and provide best available mine maps prior to making pipeline routing determinations. Funding may be necessary to continue to provide technical assistance and mine mapping information and planning tools to local governments that would allow them to become more informed of their surface and underground abandoned mine land conditions within their respective land areas and municipalities. Additional hydrogeological studies are needed to define underground abandoned mine pool complexes throughout the Commonwealth of PA, their

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proximities to the surface, and hydrologic connections to existing abandoned mine discharges in mining impacted watersheds. The use of GIS is recommended to create geographical overlays of points, lines, and polygon features of abandoned mine land problem areas and the descriptions and details of both surface and underground active and abandoned mine land features on the landscape. Those GIS tools should allow for 3-D visualization, changes over time, and be accessible to the public.

Challenges to achieving recommendation:
For specific projects, conducting borings in some areas having buried toxics may cause more harm than benefit. A more general assessment of the presence of buried mine workings, existing funding is not sufficient to fully map areas having either active or abandoned mines. Not all mine maps are digitally scanned, catalogued, digitized, or geo-referenced and thousands more need to be researched and reviewed to have the same work applied to them to make them more readily available for planning purposes. The Commonwealth does not have a policy to allow the various Bureaus dealing with active and abandoned mine lands to coordinate and review pipeline projects to avoid redundancy and to centralize the review process from a mining perspective. In some locations, it will be difficult to find specific mine maps because many coal companies do not provide them to the public, which could present a challenge when there are no maps in an inventory such as the Office of Surface Mining Folio Series.

Additional supporting material:
www.minemaps.psu.edu, http://www.pamsi.org/,
http://www.ahs.dep.pa.gov/PHUMMISExternal/default.aspx/default.aspx,
http://www.northernfield.info/, http://amrclearinghouse.org/Sub/SCARLIFTReports/,
http://psu.libguides.com/anthracite

Issues to address (such as cost, environmental impacts):
Cost of development of a centralized pre-screening tool that might allow for the overlay of several of the GIS mining-related layers to assist in planning on a DEP webpage or portal; Gap analysis across the Commonwealth where mine maps do not currently exist or are poorly developed, in terms of the number of mine maps available, both surface and underground that would allow for decisions to be made with the best available mapping technology. Parties responsible for implementing these tasks would need to be identified. At present, the Mine Subsidence Insurance Program is actively performing that task by populating the www.minemaps.psu.edu; DEP BAMR has their own prioritization for reclamation projects within defined Problem Areas in the Abandoned Mine Land Inventory System (AMLIS) that is used to assist with determining which Priority 1 & Priority 2 (health and safety hazards) are reclaimed.

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Environmental Protection Workgroup Recommendation #15

Route Pipelines to Minimize Disturbance to Forest Interiors

Full recommendation:
Pipelines should be planned and constructed in a manner that minimizes disturbance of intact forests having extensive interior forest habitat. Create canopy overhang when possible. Whenever possible, route pipelines through meadows, successional shrublands, and agricultural fields.

Relevant agencies:
DEP
DCNR
County Conservation District
Universities

Justification:
Intact forests harbor significant amounts of Pennsylvania's biodiversity, and provide ecosystem services such as water and air purification. Fragmenting forests vital pipeline corridors has been shown to reduce habitat for interior species, create pathways for aliens and invasive to enter, and create faunistic assemblages that are dominated by generalists.

Actions that would be required to achieve recommendation:
Arrange a meeting between DEP, DCNR Bureau of Forestry, PGC, and university researchers to arrive at a workable definition for core forests.

Challenges to achieving recommendation:
The definition of core forests is elusive and may be arbitrary due to size of forest, maturity of ecosystems, and natural disturbances (blowdowns) that reduce core forests. One approach would be to use indicator species such as certain warblers and other interior nesting birds. Doing so would necessitate a landscape-level approach to planning, which would also need to take into account other forms of disturbance such as agriculture, urbanization, roads, and timbering. In essence, if interior forests are off limits to pipelines, they should also be off limits to other forms of human development.

Additional supporting material:
Books and monographs on core forests. DCNR study of development within state lands.

Issues to address (such as cost, environmental impacts):
As noted, definition of core forests would need to be solidified. Certainly, core forests can be protected within state lands (state forests and parks). However, there is no legal framework to protect core forests on private lands.

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Environmental Protection Workgroup Recommendation #16

Avoid Steep Slopes and Highly Erodible Soils

Full recommendation:
Where possible, pipelines should be routed to avoid steep slopes (suggest grade over 10%), especially on erodible soils. However, whenever pipelines must traverse slopes, they should do so at right angles to the grade of the slope. Waterbars and trench plugs should be installed on all pipelines constructed on a grade.

Relevant agencies:
DEP
Conservation District

Justification:
Exposing steep slopes to cuts from pipelines create opportunities for erosion, especially on highly erodible soils. But constructing pipelines at an angle to the slope maximizes disturbance, both horizontally and lengthwise. Therefore, a perpendicular cut is recommended. Waterbars and other features reduce the possibility for erosion from the steep slope.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Those not familiar with pipeline construction, but nonetheless commenting on proposed projects, may not understand the rationale for crossing steep slopes perpendicularly, rather than at an angle.

Additional supporting material:
http://www.nature.org/ourinitiatives/regions/northamerica/areas/centralappalachians/recommended-shale-practices-overview.pdf

Issues to address (such as cost, environmental impacts):
Numerical definition of steep slope is based on Nature Conservancy document.

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Environmental Protection Workgroup Recommendation #17

Share Rights-of-Ways

Full recommendation:
Where practicable, safe, and all parties are agreeable, oil and gas development and associated infrastructure should utilize existing disturbances such as road networks, rights-of-way corridors and other utility installations.

Relevant agencies:
DEP
DCNR
Conservation District
Pennsylvania Department of Transportation (PennDOT)
Other utilities
Other pipeline companies

Justification:
Pipelines that share existing corridors reduce the amount of disturbance and fragmentation that would otherwise occur with a separate pipeline corridor.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Hesitation by some parties to share. Some corridors (high voltage power lines) might not be compatible with natural gas pipelines.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Some sharing may not be practicable due to unique factors of other partners. Co-locating natural gas pipelines and high-tension lines may be hazardous due to the electromagnetic fields that may interact with the pipeline or the gas.

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Environmental Protection Workgroup Recommendation #18

Identify Barriers to Sharing Rights-of-Ways

Full Recommendation:
DEP should undertake a study to identify any legal, administrative, regulatory, or technical barriers that currently prevent the co-location of pipelines with either other pipelines or existing disturbances such as road networks, rights-of-way corridors and other utility installations. Once these barriers are identified, the Commonwealth should take reasonable measures to eliminate or mitigate them in order to incentivize co-location as a means of minimizing environmental disturbance.

Relevant Agencies:
DEP
DCNR
PennDOT
Pennsylvania General Assembly

Justification:
Pipelines that share existing corridors reduce the amount of disturbance and fragmentation that would otherwise occur with a separate pipeline corridor. Co-location is sometimes prevented by legal obstacles that may prevent the necessary parties from coming together to reach an agreement. Other times, there may be technical barriers to co-location, such as concerns about co-locating pipelines and electricity transmission lines. Helping pipeline operators overcome these barriers may help to minimize environmental damage, while also reducing cost to industry.

Actions that would be required to achieve recommendation:
Conduct a study to identify barriers to co-location. Take appropriate measures to minimize barriers to co-location.

Challenges to achieving recommendation:
Gathering information about barriers to co-location may be difficult. It will involve significant legal and technical research, and it will also require talking with a number of stakeholder groups, including pipeline companies, government agencies, and landowners.

Additional supporting material:
https://www1.maine.gov/energy/pdf/LD1786%20Co-Location%20Report%20FINAL%20May%202011.pdf

Issues to address (such as cost, environmental impacts):

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Environmental Protection Workgroup Recommendation #19

Establish Setbacks from Wetlands and Watercourses

Full recommendation:
With the exception of approved encroachments, no earth disturbance activities associated with natural gas infrastructure development should occur on the surface within 50' of any stream, wetland, vernal pool, spring seep, other waters of the Commonwealth. However, the setback distance would be increased to 150', or perhaps 330' as per The Nature Conservancy recommendation for specially designated waters, unless the sponsor can demonstrate that a line placed within that setback would have no adverse impact to the stream or watercourse in question.

Relevant agencies:
DEP

Justification:
Maintaining a setback distance from a wetland or watercourse provides an additional measure of protection to that resource.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
See below

Additional supporting material:
http://www.nature.org/ourinitiatives/regions/northamerica/areas/centralappalachians/recommended-shale-practices-overview.pdf

Issues to address (such as cost, environmental impacts):
A 100' wide setback may not be practicable for a linear feature such as a pipeline. Also it does not match with the 25' distance referenced in "Environmental Protection Worksheet Recommendation #12" and the current Stormwater MNP manual.

Draft

Environmental Protection Workgroup Recommendation #20

Use Dry Seals for Centrifugal Compressors

Full recommendation:
It is recommended that pipeline owners or operators, where possible, consider using "dry seals," which use high pressure natural gas as a seal, for any new and replaced seals in centrifugal compressors instead of "wet seals," which use high pressure oil as a barrier.

Relevant agencies:
DEP

Justification:
Centrifugal compressors are commonly used in natural gas transmission systems. These systems have traditionally used "wet seals" that use high-pressure oil as a barrier to prevent gas from escaping. Research conducted by U.S. Environmental Protection Agency (EPA) has shown that dry seals, which use high pressure gas to seal the compressor, significantly reduce both methane emissions and operating costs. The dry seals have a much lower emission rate, because they do not require degassing, as wet seals do. Dry seals also require less power to operate. Combining these factors, replacing wet seals with dry seals will significantly improve the environmental performance of centrifugal compressors.

Actions that would be required to achieve recommendation:
Operators would use dry seals instead of wet seals when they build new systems or replace seals in existing systems.

Challenges to achieving recommendation:
There is an initial capital cost to using dry seals over wet seals, but EPA estimates that the payback period for that investment is 13-29 months.

Additional supporting material:
EPA Natural Gas STAR Program: http://www3.epa.gov/gasstar/documents/ll_wetseals.pdf

Issues to address (such as cost, environmental impacts):
Initial cost of seal

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Environmental Protection Workgroup Recommendation #21

Minimize Methane Emissions During Compressor Station Shutdown Periods

Full recommendation:
It is recommended that pipeline operators establish practices that minimize the natural gas emissions during compressor station shutdown events. Recommended practices include, but are not limited to: keeping compressors pressurized when off-line or connecting blowdown vent lines to the fuel gas system to recover vented gas.

Relevant agencies:
DEP

Justification:
Compressors must be taken off-line at times to conduct regular maintenance and repair. Often during shut-down, operators vent high pressure gas remaining in the pipeline either to the atmosphere or to a flare. These emissions can be minimized by:

- Keeping compressors pressurized when off-line.
- Connecting blowdown vents to fuel system to recover some or all of the vented gas.
- Using static seals on compressor rod packing.
- Using ejectors on blowdown vent lines.

Actions that would be required to achieve recommendation:
Operators would need to reevaluate and revise their operating procedures to incorporate the suggestions listed above.

Challenges to achieving recommendation:
Evaluating options and revising standard operating procedures to reflect new practices.

Additional supporting material:
EPA Natural Gas STAR Program:
http://www3.epa.gov/gasstar/documents/ll_compressorsoffline.pdf

Issues to address (such as cost, environmental impacts):
Some suggestions incorporated into this recommendation require an up-front cost for new equipment.

Draft

Environmental Protection Workgroup Recommendation #22

Use Pump-Down Techniques Before Maintenance and Repair

Full recommendation:
It is recommended that pipeline operators use pump-down techniques where possible to lower gas line pressure before venting gas to the atmosphere for maintenance or repair activities.

Relevant agencies:
DEP

Justification:
Significant methane emissions occur during blowdowns for routine maintenance or pipeline upsets. EPA estimates that in 2004 alone, 12 billion cubic feet of methane was emitted to the atmosphere under these conditions. The volume of gas released to the atmosphere during these processes can be reduced if pipeline operators use pump-down techniques to decrease the pressure of the pipeline segment before they evacuate the remaining gas from the segment.

Actions that would be required to achieve recommendation:
Operators would need to revise their procedures to allow for pump-down techniques, and they may need to obtain compressors if there are no adequate in-line compressors available.

Challenges to achieving recommendation:

Additional supporting material:
EPA Natural Gas STAR Program: http://www3.epa.gov/gasstar/documents/ll_pipeline.pdf;

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #23

Develop Plans for Construction, Operation, and Maintenance

Full recommendation:
The project sponsor should develop a long term operations and maintenance plan. Such plans should include, but need not be limited to:

- Lawn, shrub, tree and vegetation maintenance.
- Use of fertilizers, herbicides, pesticides or insecticides.
- Operation and maintenance of soil erosion and sediment control and post-construction storm water management features.
- Practices associated with hydrostatic test water and discharge of hydrostatic test water discharge.
- Facility pipeline or power line inspections (already being done?)

Relevant agencies:
DEP
County Conservation District

Justification:
A plan is needed to ensure that the pipeline right of way does not become populated with invasive species, serve as a source of erosion or pollution to receiving waterbodies, or pose a hazard to neighboring communities.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):
The detail needed in such a plan may be difficult to specify.

Draft

Environmental Protection Workgroup Recommendation #24

Implement Directed Inspection and Maintenance Program for Compressor Stations

Full recommendation:
It is recommended that compressor station operators implement a Directed Inspection and Maintenance Program for each compressor station. Such a program should be designed to identify and fix any leaks within the compressor station system.

Relevant agencies:
DEP

Justification:
EPA estimates that 50.7 billion cubic feet of methane emissions result from leaking compressors and other equipment components, such as valves, flanges, connections, and open-ended lines. Implementing a thorough Directed Inspection and Maintenance Program for compressor stations will help operators recoup the profits that would have been lost as a result of fugitive emissions, while also helping to reduce greenhouse gas emissions to the atmosphere. The Directed Inspection and Maintenance Program should include regular screening to identify leaks using appropriate leak-screening techniques. The leaks should then be repaired as expeditiously as possible to minimize emissions.

Actions that would be required to achieve recommendation:
Operators would need to create and implement a Directed Inspection and Maintenance program for their compressor station facilities.

Challenges to achieving recommendation:
Cost associated with developing and implementing the program.

Additional supporting material:
EPA Natural Gas STAR Program: http://www3.epa.gov/gasstar/documents/ll_dimcompstat.pdf

Issues to address (such as cost, environmental impacts):
Potential cost of initiating and maintaining the program.

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Environmental Protection Workgroup Recommendation #25

Implement Wetland Banking/Mitigation Measures

Full recommendation:
The Commonwealth should develop and establish the Pennsylvania Integrated Ecological Services Enhancement and Support (PIESCES) in lieu fee (ILF) program under the provisions of 33 CFR Part 332.8. The proposed program would be applicable for use in providing compensatory mitigation of aquatic resources impacts throughout the Commonwealth of Pennsylvania, within the regulatory boundaries of the Baltimore, Philadelphia, and Pittsburgh Districts of the U.S. Army Corps of Engineers.

Relevant agencies:
DEP
USACE

Justification:
The proposed PIESCES ILF program seeks to:

- Provide aquatic resource compensatory mitigation that offsets compensatory mitigation requirements for DEP authorized impacts, Department of the Army (DA) authorized impacts, Corps of Engineers Civil Works project impacts, and/or to satisfy requirements of non-compliance issues or unauthorized activities (i.e., enforcement) to ensure a no net loss of acreage and/or functions of wetlands, streams, floodplains and other bodies of water.
- Ensure "no net loss" of acreage and/or functions of wetlands, streams, floodplains, and other bodies of water through establishment, enhancement, and restoration of aquatic resources.
- Provide a means to ensure that adequate compensatory mitigation of effected aquatic resources occurs within a framework that integrates the Commonwealth's watershed planning and prioritization processes to the maximum extent practicable.

Actions that would be required to achieve recommendation:
The Corps will evaluate the submitted PIESCES prospectus in accordance with all requirements of the Mitigation Rule in 33 CFR Parts 325 and 332; in consultation with the Pennsylvania Interagency Review Team (IRT); and in consideration of comments received from the general public in response to this Special Public Notice, to determine the potential of the proposed ILF program to provide compensatory mitigation for activities authorized by DA permits within the Commonwealth of Pennsylvania. The utilization of approved and established mitigation banks with available credits, and approved ILF programs, is given preference to other forms of compensatory mitigation in the hierarchy of potential mitigation options as contained in the Mitigation Rule (33 CFR 332.3(b)(1)-(6)). A final approved ILF instrument does not provide DA authorization for specific future projects impacting waters of the United States; exclude such future projects from any applicable statutory or regulatory requirements; or preauthorize the use of credits from the ILF program for any particular project. The Corps provides no guarantee that any particular individual or general permit will be granted authorization to use the ILF program

to compensate for unavoidable aquatic resource impacts associated with a proposed permit, even though compensatory mitigation may be available within the defined service area

Challenges to achieving recommendation:

Additional supporting material:
http://www.nab.usace.army.mil/Missions/Regulatory/PublicNotices/PublicNoticeView/tabid/16587/Article/494191/spn14-24-2014-00371-pennsylvania-integrated-ecological-services-capacity-enhanc.aspx

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #26

Use Antidegredation Best Available Combination of Technologies to Protect EV and HQ Waters

Full recommendation:
Where it is not possible to avoid discharging from disturbed areas to a special protection watershed, the project sponsor should use Antidegradation Best Available Combination of Technologies (ABACT) to the fullest extent possible. A listing of ABACT BMPs is contained in Chapter 17 of DEP's Erosion and Sediment Pollution Control Manual.

Relevant agencies:
DEP

Justification:
Pennsylvania waters are classified according to their water quality. The highest quality waters are classified "special protection" waters, which are entitled to additional levels of protection to ensure that they maintain their high water quality. ABACT BMPs for erosion and sedimentation control and post-construction stormwater management are designed to prevent degradation of water quality. Permittees conducting earth disturbance activities in special protection watersheds are required under Pennsylvania's Chapter 102 regulations to use ABACT BMPs to manage the change in a 2-year/24-hour storm event to help prevent deterioration of water quality.

Actions that would be required to achieve recommendation:
Ensure industry awareness of antidegradation requirements and the importance of protecting special protection waters; ensure adequate DEP resources to implement ESCGP-2 permitting program.

Challenges to achieving recommendation:
Ensure budget resources to fund DEP permit review efforts.

Additional supporting material:
25 *Pa. Code* 93.4c(b)(1)(i)(B); 25 *Pa. Code* § 102.4(b)(6); 25 *Pa. Code* § 102.8(h).

Issues to address (such as cost, environmental impacts):
N/A

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Environmental Protection Workgroup Recommendation #27

Avoid Dams and Reservoirs

Full recommendation:
Project sponsors should avoid crossing dams, dam related impoundment structures, and water supply, flood protection or other major reservoirs.

Relevant agencies:
DEP
All other applicable state, federal, local and regional permitting agencies, including DRBC and SRBC

Justification:
Dams are high hazard structures typically with significant and critical uses such as water supply and flood protection. Construction should be avoided at or near dams.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:
Headwaters of certain reservoirs may transition to streams and in such cases BMPs for stream crossings should be used.

A**dditional supporting material:**

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #28

Avoid Water and/or Wastewater Discharges

Full recommendation:
The project sponsor should avoid hydrostatic test water discharges to receiving streams where possible.

As applicable, the project discharge should meet the requirement of NPDES General Permit, PAG-10 Discharges from hydrostatic testing of Tanks and Pipelines.

All discharges should comply with state water quality criteria; state waste load allocation and standards; and any applicable requirements and standards of the DRBC, as applicable within the Delaware River Basin.

Relevant agencies:
DEP
All other applicable state, federal, local and regional permitting agencies, including the DRBC

Justification:
Clean Water Act and the Pennsylvania Clean Streams Law.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:

A**dditional supporting material:**

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #29

Develop Plans for No Net Loss of Forests in Headwater Watersheds

Full recommendation:
The project sponsors for transmission and gathering infrastructure should develop and implement plans that result in no net loss of forests in headwater watersheds (for 1st order streams) either through: avoidance, minimization; and/or compensatory mitigation.

Relevant agencies:
DEP
DCNR

Justification:
Forest cover is an ideal land use protection of significant water resources throughout the Commonwealth. Forests play and integral role in the hydrologic cycle and are in important contributor to watershed health and water resources. While the relationship between forests and water resources is complex, local disturbances at the site level can have, or lead to, impacts at the watershed scale. Forest function can vary form a water resources perspective. Headwater watersheds play a high value role in protection of water quality.

Actions that would be required to achieve recommendation:
Additional research and study may be required to further refine the definition of high value water resource landscapes. While this BMP suggest for watersheds, the highest value to avoid or mitigate may be those associated with first order streams, the topic suggest more complexity and more study is needed for definition.

Challenges to achieving recommendation:
Development of a forest mitigation program for the Commonwealth.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #30

Develop Plans for No Net Loss of Forested Riparian Buffers

Full recommendation:
The project sponsors for transmission and gathering infrastructure should develop and implement plans that result in no net loss of forested riparian buffers either through: avoidance, minimization; and/or compensatory mitigation.

Relevant agencies:
DEP

Justification:
Forest cover is an ideal land use protection of significant water resources throughout the Commonwealth. Forests play and integral role in the hydrologic cycle and are in important contributor to watershed health and water resources. While the relationship between forests and water resources is complex, local disturbances at the site level can have, or lead to, impacts at the watershed scale. Forest function can vary from a water resources perspective. Forested riparian buffers play a high value role in protection of water quality.

Actions that would be required to achieve recommendation:
Additional research and study may be required to further refine the definition of high value water resource landscapes.

Challenges to achieving recommendation:
Current laws and regulations define actions, conditions, requirement and exemptions that may not require forested riparian buffer avoidance or mitigation.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #31

Develop Plans for No Net Loss of Wetlands

Full recommendation:
The project sponsors should develop and implement plans that result in no net loss of regulated and applicable wetlands either through: avoidance, minimization; and/or compensatory mitigation.

Relevant agencies:
USACE
DEP
PFBC
United States Fish and Wildlife Services (USFWS)

Justification:
Wetlands are recognized important habitats because of their unique role in the landscape, the critical habitat they provide for plants and animals of special concern and as having high value in many ways.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:
Property owners might not see value of protecting wetlands and may indeed prefer to have the pipelines installed in the "unusable" portion of their property.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #32

Study Long-Term Impacts of Pipeline Infrastructure on Water Resources and Sensitive Landscape

Full recommendation:
The Commonwealth should perform a long term and independent research based study of impacts of pipelines and other related infrastructure on water resources and sensitive landscapes.

Relevant agencies:
DEP
DCNR
DRBC
SRBC
PFBC
PGC

Justification:
There is a need to learn about the long-term and larger scale impacts of pipeline construction on land, water, air and other environmental resources.

Generally, environmental protection efforts and programs are focused on short-term and local scale impacts of development, but what happens over the long-term once permit obligations are completed? An independent long-term study should be commissioned to study and evaluate impacts beyond the project scale. The results of the study can be used to evaluate current environmental programs and best management practices and help to establish best practices for future planning and construction processes.

Actions that would be required to achieve recommendation:
The Commonwealth would need to set aside funds to commission a study. It would then need to define the parameters for the study and identify a person or group to complete the study. It may be necessary to obtain the cooperation and support of pipeline companies and/or private landowners to obtain necessary access.

Challenges to achieving recommendation:
Any of the above actions can become obstacles to implementation. The primary challenge will probably be obtaining the necessary funding to pay for the project. Secondary challenges may come from political obstacles inherent in designing the study and/or identifying independent party or parties who can carry it out.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
- Cost
- Identification of an independent party that can conduct the study in a manner

Environmental Protection Workgroup Recommendation #33

Minimize Methane Emissions

Full recommendation:
DEP continually monitor scientific and technical literature to ensure that appropriate technology and best practices are being used to minimize greenhouse gas emissions from pipeline infrastructure.

Relevant agencies:
DEP

Justification:
Methane, the primary component of natural gas, is a potent greenhouse gas that, pound for pound, has a 25 times greater impact on climate change over a 100-year period than does carbon dioxide.[1] Oil and natural gas operations are the largest source of methane emissions in the United States,[1, 2] and according to EPA, approximately 27% of methane emissions from the oil and gas industry in 2012 occurred during transmission and storage.[3] Thus, it is important that the DEP stay abreast of developments in science and technology to ensure that it is poised to act on new opportunities to reduce methane emissions in the pipeline sector.

Actions that would be required to achieve recommendation:
DEP should ensure that staff regularly monitors scientific and technical literature related to methane emissions from the natural gas sector.

Challenges to achieving recommendation:
Limited DEP staff resources

Additional supporting material:
[1] http://www3.epa.gov/climatechange/ghgemissions/gases/ch4.html
[2] https://www.edf.org/sites/default/files/AWMA-EM-airPollutionFromOilAndGas.pdf
[3] http://www3.epa.gov/gasstar/methaneemissions/index.html

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #34

Minimize Impacts of Stream Crossings

Full recommendation:

- The project sponsor should identify all stream crossings and the manner of crossing in each instance that is designed and implemented consistent with soil erosion and sediment control best management practices and in a manner that minimizes short- and long-term impacts on water resources.
- The project sponsor should consider available techniques for each waterway crossing and provide the justification for the techniques proposed.
- Crossings that employ trenchless technologies such as horizontal directional drilling (HDD) and micro-tunneling under the streambed are preferred for larger crossing and those with forested riparian buffers.
- Dry crossings using coffer dam construction may be used and preferred for crossings where impacts and duration of construction can be effectively and beneficially managed.
- Project width disturbances should be minimized to leading practical limits at stream crossings and within riparian buffer areas.

Relevant agencies:
DEP
PFBC

Justification:

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:
There is a perception that trenchless methods like HDD may be the best method for each crossing. While trenchless methods may be preferred in many cases, in some cases, the impacts could be significantly greater, especially for small crossings that can be managed and constructed in a very short direction with minimal impact.

Additional supporting material:
PFBC white paper entitled: *Guidance for Pipeline Crossings of Pennsylvania's Aquatic Ecosystems, Division of Environmental Services*, PA Fish and Boat Commission, Feb. 2012 should also be used for the design and implementation.

Pennsylvania Erosion and Sediment Pollution Control Program Manual
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf

Pennsylvania Stormwater BMP Manual
http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #35

Conduct Research to Improve Revegetation BMPs

Full recommendation:
The Commonwealth should develop and fund opportunities for scientists to develop new seed/vegetation mixes that produce sustainable communities of native species attractive to higher trophic levels, resistant to invasive species, and preventative of erosion. Such mixes may include species such as *Panicum virgatum* (switchgrass) that can be used for biomass energy development. In addition, DEP should monitor and consider implementing science-based BMPs developed by other organizations, agencies, states, and academia.

Relevant agencies:
DEP
DCNR

Justification:
A research program sensitive to Pennsylvania's unique combinations of soils and climate will help to develop restoration mixes and approaches that provide vegetation mixes that promote food chain support and even biomass crops.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Funding, unwillingness of agencies to support.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #36

Require Shutoff Valves for Liquid Product Pipelines

Full recommendation:
For liquid product pipelines, the project sponsor should ensure that transmission and gathering pipelines are fitted with shutoff valves at easily accessible locations that would minimize liquid release in the event of a break or rupture.

Relevant agencies:
DEP

Justification:
Stopping pipeline product flow as quickly as possible in the event of a break or rupture is imperative to minimize environmental impacts.

Actions that would be required to achieve recommendation:
Project sponsors should identify valve locations that focus on protection of sensitive water resources. When possible, project sponsors should utilize technology that allows for remote control of valves that can be shut off electronically when there is indication of an incident.

Challenges to achieving recommendation:
Retrofitting older pipeline systems with remote control valves is costly.

Retrofitting older pipeline systems with remote control valves is costly:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #37

Use Dust Suppression Controls Near Water Resources

Full recommendation:
Dust suppression controls should be put in place for vehicle traffic accessing pipelines. Possible methods include using non-potable water, tar, and dust suppressants and the chosen method should be appropriate based on the location of the road, taking into account such things as proximity to private homes and streams.

The project sponsors and their contractors should avoid chemical dust suppression activities near the ordinary high water mark of any reservoir, lake, wetland, or natural, perennial, or seasonally flowing stream or river.

Relevant agencies:
DEP
DCNR

Justification:
Dust created by driving vehicles and equipment over dirt and gravel access roads adversely affects air quality and can pose a safety hazard for drivers and workers. Taking steps to prevent or suppress dust can help mitigate those problems. Care should be taken, however, to select a dust suppression method that is appropriate for the environment.

Chemicals, such as magnesium chloride, that are applied to dirt roads to suppress dust may run off in to local water bodies if applied too close to the stream. To prevent such contamination, such chemicals should not be applied within 300 feet of a water resource. Such a BMP has been implemented in other jurisdictions and has been found to be effective. (See Environmental Practice article cited below.)

Actions that would be required to achieve recommendation:
Site operators would need to identify areas within 300 feet of water bodies that would ordinarily require dust suppression activities and take measures to prevent the application of chemical dust suppressants in that area. Depending on the method chosen, there could be potential adverse environmental effects from dust suppressants. Operators should take care to ensure the chosen dust suppression method is appropriate for the location.

Challenges to achieving recommendation:
Training of employees who apply chemical dust suppressants.

Additional supporting material:
Environmental Practice 14 (4), December 2012 at 317; Colorado Division of Wildlife's Actions to Minimize Adverse Impacts to Wildlife Resources, at 5 (October 2009), *available at* https://cogcc.state.co.us/documents/reg/OpGuidance/Colorado%20DOW%20Final%20BMPs_090309.pdf ;

J Environ Qual. 2009 Oct 29;38(6), *available at* http://www.ncbi.nlm.nih.gov/pubmed/19875793

http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.63068.File.dat/WO1_Air%20Resource_BMP_Slideshow%2005-09-2011.ppt

Issues to address (such as cost, environmental impacts):
Operators would need to implement an appropriate dust suppression protocol.

Draft

Environmental Protection Workgroup Recommendation #38

Test Efficacy of Silt Fencing

Full recommendation:
DEP should test and consider the addition of additional soil erosion and sediment (E&S) control products such as the Silt Saver Fence.

Relevant agencies:
DEP

Justification:
There are E&S control products/methods that have shown to be equal to or greater than the products/methods approved in the DEP Erosion Control and BMP Manuals. These products are not approved for use, limiting the options for project sponsors

Actions that would be required to achieve recommendation:
A convenient and predictable method for approval of new E&S control technologies, that also provides the regulated public with notification of the approvals, preferably as an appendix to the existing E&S and BMP manuals.

Challenges to achieving recommendation:
DEP workload and staffing challenges

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #39

Test Soils in Acid Deposition Impaired Watersheds to Identify Need for Additional Liming

Full recommendation:
The project sponsor should identify all project related landscape earth disturbance areas where Acid Deposition has resulted in exceedances of surface water Critical Loads and where Calcium (Ca) depletion has likely occurred. In earth disturbances in these landscape the suggested post construction practice of soil amendment with an application rates of 6 tons/acre, as noted in the DEP E&S Program Manual may be inadequate to buffer the rainfall acidity necessary to prevent the mobilization of the toxic dissolved Aluminum from soils. Soil tests are recommended and additional application rates of lime may be warranted.

Relevant agencies:
DEP
PFBC

Justification:
Acid deposition has altered Pennsylvania soils in many landscapes resulting in Ca depletion, and lower soil pH levels. In many instances acid precipitation dissolves and mobilizes the aquatic life toxic metal Al. Soil disturbances may accelerate the solubilized metals released in storm-water runoff.

Actions that would be required to achieve recommendation:
Other mechanisms or means to provide substitute base cation buffering to acid precipitation impaired storm-water may include the placement of limestone sand into roadside ditches, channels, storm-water basins, outlet protections, or as amendments to compost filter socks or berms. These special situations BMP are recommended and may be necessary to capture and mitigate dissolved aluminum conveyed from disturbed surfaces in Acid Precipitation impaired catchments.

Challenges to achieving recommendation:
It is recommend that a supplement to the Erosion and Sediment Pollution Control (E&SPC) Program Manual be provided to raise awareness to the Acid Precipitation impacts to our soils and to identify air sheds where critical loads of Acid Precipitation occurs and where existing soils lack the cation exchange capacity to address the air source pollution load. Additionally, special BMP that incorporating limestone sand into standard BMP should be developed and added to the E&SPC Program Manual.

Additional supporting material:
National Atmospheric Deposition Program NAPD 2014 Annual Summary.

NAPD 2015 Summary of Critical Load Maps.

Pennsylvania Erosion and Sediment Pollution Control Program Manual
http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-88925/363-2134-008.pdf

Pennsylvania Stormwater BMP Manual
http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8305

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #40

Sponsors Should Review the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Tool

Full recommendation:
The project sponsors should review and utilize the PNDI early in the project planning process. PNDI enables the public to perform online PNDI searches for potential impacts to threatened, endangered, special concern species and special concern resources in PA.

Relevant agencies:
DCNR
DEP
USFWS
PGC
PFBC

Justification:
Because the Environmental Review Tool is easily accessible to the public, it is recommended that PNDI coordination be completed prior to project development and submission of any permit applications. During instances when the PNDI search indicates potential impacts, early consultation with the proper special concern species or resource jurisdictional agencies (preferably prior to plan development) is crucial. Early consultation not only minimizes associated delays and cost, but also facilitates the integration of more effective conservation measures into project planning.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:
Not all significant environmental resources are identified in this screening tool. The tool does not provide a substitute for agency discussions and coordination, especially on large projects or project that potentially have significant environmental impacts.

Additional supporting material:
http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_Introduction.aspx

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #41

Develop Construction Sequencing Plan

Full recommendation:
The project sponsor should develop and maintain a construction sequencing plan. The purpose of the sequence is to reduce the potential for accelerated erosion and the resultant sediment pollution to surface waters by ensuring that the BMPs designed to accomplish that are in place and functioning when they are needed.

Relevant agencies:
DEP
County Conservation District

Justification:
Explained above.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
None envisioned.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #42

Stockpile Topsoil During Construction for Use in Restoration

Full recommendation:
Operators should stockpile topsoil during clearing, and use it during restoration. Operators should avoid compacting soils in the right-of-way.

Relevant agencies:
DEP
County Conservation District

Justification:
Conserving soils originally found at the site would have two benefits. First, trucking soils from the site would be cost-prohibitive. Second, the soils found originally at the site typically have higher fertility and water-holding capacity than the subsoils exposed from grubbing or trenching.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Stockpiling soils often increases the width of the disturbance zone, resulting in more natural habitat fragmentation. Care should be taken to ensure that soil stockpiles are not sources of sedimentation.

Draft

Environmental Protection Workgroup Recommendation #43

Soften Forest/Right-of-Ways Edges and Promote Canopy Closure

Full recommendation:
When cutting through forest, attempt should be made to remove as few trees as possible so as to retain/promote canopy closure. The edge of the forest should be softened with shrubs to promote a diverse ecotone community.

Relevant agencies:
DEP
DCNR
County Conservation District

Justification:
Typically, pipeline rights of way are cleared of trees in a manner that leaves an open canopy and a hard edge between the ROW and the forest. The result is increasing edge effect into the forest, including light and wind penetration, as well as the invasion of grassland species into the forest. By introducing a border of shrubs or small trees at the edge of the forest, the edge effect will be reduced. Moreover, allowing branches of adjoining trees to overarch the ROW would reduce the fragmentation effect into the forest.

Actions that would be required to achieve recommendation:
Arrange meetings between agency officials and industry to specify details of this recommendation.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Introducing a shrub border may not be cost effective and logistically difficult for operators.

Draft

Environmental Protection Workgroup Recommendation #44

Create Onsite Habitat

Full recommendation:
Construct brush piles and wind rows to be left on-site within the right-of-ways of old tree stumps and or fallen trees that have little timber value to the landowner to increase wildlife habitat, species diversity, and to serve as erosion and sedimentation control BMP. Alternatively (or in addition), the site should be enhanced by nest boxes and other features to attract animals.

Relevant agencies:
DEP
DCNR
PGC
County Conservation District

Justification:
Creating habitat features will improve the biodiversity of the site, providing for food chain support and control of potential pest species.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
See below.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Property owners might not see value of these improvements, and may indeed prefer to reduce wildlife populations within their property.

Draft

Environmental Protection Workgroup Recommendation #45

Prevent Invasive Species from Entering Sites

Full recommendation:
Contractors should engage in construction practices to avoid the introduction of invasive species onto the site. Such practices are outlined in information provided by DCNR. Avoid tracking-in/introducing invasive species (seeds stuck to equipment, etc.)

Relevant agencies:
DEP
DCNR
County Conservation District

Justification:
Preventing invasive species from entering pipeline sites is needed to reduce their spread throughout the Commonwealth. Where they become established, invasive species are known to outcompete native plants and animals. While some invasive species are poor at colonizing the adjoining forest, others do invade well into surrounding intact forest, degrading their ecological function and value.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:

Additional supporting material:
http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_002854.pdf

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #46

Ensure Ecologically Sensitive Revegetation of Right-of-Ways

Full recommendation:
Areas that represent permanent rights-of-way (pipeline corridors, access roads) that are not designated for agriculture or pastures should be planted and managed to facilitate dominance by native low shrubs, late-season grasses, and broadleaf forbs that promote species diversity in higher trophic levels. Include plantings to attract pollinators and desired insect herbivores if feasible (native wildflowers, milkweed). Avoid planting cool-season meadow grasses (fescue, timothy, bluegrass) and non-native herbs (crown vetch, birdsfoot trefoil, white clover). Planting a nurse crop of an annual grass is recommended to initiate site restoration. Plant during the spring, early summer, or late summer to avoid impacts of drought or frost. Areas that represent temporary disturbances and not designated for other use should be reforested using approaches outlined by the Appalachian Regional Reforestation Initiative (ARRI). During revegetation, care should be taken to use only minimal amounts of fertilizer, so as to prevent excess fertilizer from being transported into receiving waters.

Relevant agencies:
DEP
DCNR
County Conservation District

Justification:
Establishing a permanent vegetative cover of native species will prevent erosion and introduction of invasive species. The species should be low growing herbs and shrubs, rather than saplings or trees that would produce roots sufficiently long to reach into the pipeline. Including species for wildlife and pollination would establish stable and diverse food webs among higher trophic levels. Reducing the amount of fertilizer will reduce transport into receiving waters, thereby minimizing eutrophication.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
See below.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Current practice often involves using early season grasses and herbaceous legumes that establish relatively stable meadow communities. Seed mixes given in E&S manual may need updating.

Draft

Environmental Protection Workgroup Recommendation #47

Conduct Quantitatively Site Monitoring

Full recommendation:
Monitor the site bi-monthly during the first year, and then twice a year thereafter. Quantitatively assess the vegetation using plot-based methods to assess presence and density of each species (sampling adequacy to be determined). Post data to online archive.

Relevant agencies:
DEP
DCNR
County Conservation District

Justification:
Establishing a program of site monitoring will help to quantitatively assess the success of restoration. By posting the data to an online archive, the success of a particular pipeline project can be compared to other restoration efforts, and other plant communities that are monitored within Pennsylvania.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Industry may be unwilling to commit to monitoring or posting data.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Consensus would need to be reached concerning nature and intensity of sampling before this recommendation is implemented. All agree data needs to be collected & studied. There is debate over who needs to conduct the monitoring, and if industry is already monitoring, how do we receive and utilize the data effectively? Should DEP conduct studies? Do we require certain applicants to monitor/allow DEP to monitor for study purposes?

Draft

Environmental Protection Workgroup Recommendation #48

Conduct Regular Site Maintenance

Full recommendation:
For sites not designated for agriculture, during monitoring, remove invasives as needed following directives of County Conservation District. If necessary, manage height of vegetation by mowing at the end of the growing season. Examine and fix any spots where erosion removes soil and vegetation.

Relevant agencies:
DEP
County Conservation District

Justification:
Adaptively managing the site will ensure that the ROW remains free of invasives, has continuous vegetative cover, and is at an appropriate height to ensure access as needed.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Industry may be unwilling to commit to monitoring or posting data.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Consensus would need to be reached concerning nature and intensity of sampling before this recommendation is implemented.

Draft

Environmental Protection Workgroup Recommendation #49

Properly Use and Maintain Pipeline Components

Full recommendation:
Industry should utilize and properly maintain hatches, seals, and valves to minimize emissions.

Relevant agencies:
DEP

Justification:
Faulty hatches, seals, and valves can lead to fugitive pipeline emissions, which may include greenhouse gases, volatile organic compounds, or hazardous air pollutants. These system components should be maintained regularly to minimize emissions.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:

Additional supporting material:
http://www.blm.gov/style/medialib/blm/wo/MINERALS__REALTY__AND_RESOURCE_PROTECTION_/bmps.Par.63068.File.dat/WO1_Air%20Resource_BMP_Slideshow%2005-09-2011.ppt

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #50

Implement Leak Detection and Repair for all Above-Ground Components of Pipeline Infrastructure

Full recommendation:
It is recommended that the owners or operators of natural gas pipelines implement a leak detection and repair (LDAR) program for all above-ground components of natural gas pipelines. Such a program should include the following:

- It is recommended that audible, visual, and olfactory (AVO) inspections be conducted at least monthly on any above-ground components of natural gas pipelines. These above-ground components should include, but not be limited to: metering sites, pig launching and receiving stations, release valves, and custody-transfer stations.
- It is recommended that within 180 days after the pipeline begins to flow gas, the owner or operator of a natural gas pipeline shall, at a minimum on a quarterly basis, use forward looking infrared (FLIR) cameras or other leak detection monitoring devices approved by DEP for the detection of fugitive leaks on any above-ground components of natural gas pipelines
- It is recommended that if any leak is detected, the owner or operator of the pipeline shall repair the leak as expeditiously as practicable, but no later than fifteen (15) days after the leak is detected unless repair within 15 days is technically infeasible without a process unit shutdown or unless emissions from immediate repair would be greater than the fugitive emissions likely to result from the delay of repair. In the event of a delayed repair, the equipment should be repaired before the end of the next process unit shutdown. Monitoring to verify repair should occur within 15 days after startup of the process unit.

Relevant agencies:
DEP

Justification:
Methane, the primary component of natural gas, is a potent greenhouse gas and a significant contributor to climate change. Preventing inadvertent leaks to the atmosphere will help minimize greenhouse gas emissions while also preventing loss of natural gas product to the environment. An LDAR program is already required under GP-5 for operators of compressor stations and processing facilities. By extending this program to all above-ground components of pipelines, pipeline operators can reduce their environmental impact and potentially improve their bottom line.

Actions that would be required to achieve recommendation:
Operators would need to extend their existing LDAR program to all above-ground components of pipelines.

Draft

Challenges to achieving recommendation:
There will be some cost associated with hiring staff to perform the monthly inspections of above-ground components. There may be some difficulty accessing some remotes sites during winter months.

Additional supporting material:
PA Air Quality Program GP-05 Section H (requiring LDAR for compressor stations and processing facilities) http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-9747

Issues to address (such as cost, environmental impacts):
Cost of extending existing LDAR program.

This recommendation will likely not address leaks from underground sections of pipelines. Pipeline operators should use industry best practices to identify and correct leaks from underground sections of pipelines.

Draft

Environmental Protection Workgroup Recommendation #51

Clarify Remediation of Spills Under Shale Regulation

Full recommendation:
Overriding goal: to ensure that any releases from pipelines should be appropriately addressed consistent with Pennsylvania's Land Recycling and Environmental Remediation Standards Act, 35 P.S. § 6026.101 et. seq. (Act 2), including the regulations and policies established pursuant to Act 2. To that end:

a. Consider recommendation to amend Section 106(a) of Act 2 to specifically include/reference the Pennsylvania Oil and Gas Act;
b. Encourage DEP to resolve inconsistencies that may exist in remediation procedures between the Chapter 78 regulatory program, the "Policy for Coordinating Immediate Responses and Final Remediation of Releases of Regulated Substances" (Spill Response Policy), the Policy for "Addressing Spills and Releases at Oil & Gas Well Sites" (Oil and Gas Policy) and Act 2 to ensure the primacy of Act 2, at least with respect to the use of Act 2 cleanup standards to ensure consistency. This has worked successfully in other DEP programs, such as the Storage Tank and Spill Prevention Act which utilizes Act 2's cleanup standards; and
c. Recommend that DEP work to resolve inconsistent interpretation of reporting/remediation procedures that may exist in the DEP regions.

Relevant agencies:
DEP
County Conservation District

Justification:
Ensure that spills are effectively addressed in a manner consistent with prevailing laws addressing oil and gas production.

Actions that would be required to achieve recommendation:
See items a, b, and c above.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Consensus would need to be reached concerning nature and intensity of sampling before this recommendation is implemented.

Draft

Environmental Protection Workgroup Recommendation #52

Establish Forest Mitigation Program

Full recommendation:
The Commonwealth should establish a Forest Mitigation program as required to meet mitigation needs, when required. The program could include: project sponsor responsible mitigation; mitigation banking; and in-lieu fee mitigation.

Relevant agencies:
DEP
DCNR
PGC

Justification:
A Forest Mitigation Program will ensure no net loss of forest habitat, and may allow for expansion of core forests where none exist.

Actions that would be required to achieve recommendation:
Incorporate into BMP Manual.

Challenges to achieving recommendation:
Time to establish forests, costs, logistics.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #53

Implement Electronic Permit Submissions for Chapters 102 and 105

Full recommendation:
It is recommended that DEP move to electronic application package submission for both ESCGP-2 and Chapter 105 permit applications.

Relevant agencies:
DEP in coordination with USACE

Justification:
This would reduce the large amount of paper currently required, reduce the amount of storage space that DEP needs in order to store the submissions, and would make the documents more easily accessible by interested parties.

Actions that would be required to achieve recommendation:
The DEP Information Technology (IT) Department would need to create an electronic submission system.

Challenges to achieving recommendation:
Manpower and funding to create the system and maintain it.

Additional supporting material:
PennDOT/DEP program currently exists. Perhaps this could be modeled similarly.

Issues to address (such as cost, environmental impacts):
Cost would be a factor.

Draft

Environmental Protection Workgroup Recommendation #54

Establish Electronic Payment for Chapters 102 and 105 Permit Fees

Full recommendation:
It is recommended that DEP establish an electronic payment program or system for accepting permit review fees.

Relevant agencies:
DEP

Justification:
This would eliminate the need for paper checks to be transferred between parties and subsequently deposited by the DEP.

Actions that would be required to achieve recommendation:
The DEP IT Department would need to create this system.

Challenges to achieving recommendation:
Manpower and funding to create the system and maintain it.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Cost is not expected to be a factor, but could be, depending on manpower required.

Draft

Environmental Protection Workgroup Recommendation #55

Evaluate Need for Hard Copies of Chapter 102 and 105 Permit Submissions

Full recommendation:
DEP should evaluate the number of hard copies they require for permit submissions. If multiple copies are required, DEP should evaluate when it is truly necessary to submit the multiple copies. Additionally, rather than submitting multiple copies, it is recommended that one (1) hard copy be submitted along with an electronic copy or (1) hard copy could be submitted and scanned into DEP's computers.

Relevant agencies:
DEP
USACE

Justification:
This would reduce the amount of paper required when revisions are requested.

Actions that would be required to achieve recommendation:
DEP would need to evaluate whether an actual need for multiple copies exists.

Challenges to achieving recommendation:
Outlining the parameters for submissions when joint submission to the USACE is required. Due to security restrictions, USACE has very stringent computer rules that currently prohibit electronic permit submissions and will likely continue to require a hard copy in the near future.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #56

Evaluate Erosion and Sediment Control General Permit (ESCGP-2) Expedited Review

Full recommendation:
DEP should evaluate its technical review process for Erosion and Sediment Control General Permit (ESCGP-2) applications to determine whether applications are reviewed efficiently and in a manner consistent across all regions and reviewers. DEP's evaluation should include, but not be limited to: staffing levels, reviewer training and experience, review checklists, DEP guidance and manuals, and consistency with the Permit Decision Guarantee policy. If DEP identifies any deficiencies, it should correct them promptly.

Relevant agencies:
DEP

Justification:
DEP has been receiving external complaints of inefficiencies in the permitting process, specifically during the technical review period. If there are solutions possible to resolve perceived inconsistencies, DEP needs to research them and implement those that are feasible.

Actions that would be required to achieve recommendation:
DEP would need to survey internal staff and conduct outreach with permit applicants to get to the core issues that need resolution. Additional internal and/or external trainings may be needed to ensure consistency.

Challenges to achieving recommendation:
Internal and external variables in the permit application process.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #57

Ensure Adequate Agency Staffing for Reviewing Pipeline Infrastructure Projects

Full recommendation:
The Commonwealth and DEP should ensure adequate staffing, as well as staffing support, to effectively oversee activities of the natural gas industry and to ensure compliance with its Permit Decision Guarantee (PDG) Policy and other DEP regulations, policy and guidance as relevant to pipeline infrastructure projects.

Relevant agencies:
DEP

Justification:
There is concern that the DEP does not have sufficient staffing levels to process and inspect the amount of new and existing pipeline infrastructure projects currently seeking permits. Moreover, the number of permits each reviewer can handle is exceeding what can reasonably be completed within parameters required by the PDG. Additionally, responses and comments to applications provided by DEP can result in extensive delay to the processing of existing and new applications which further exacerbates PDG compliance.

Actions that would be required to achieve recommendation:
DEP should evaluate the needs in each regional office and seek appropriate funding for these additional positions or for other support needs identified by DEP. Ensuring the applicants are submitting administratively complete applications to qualify for the PDG.

Challenges to achieving recommendation:
Funding for the positions, for the requisite support, and funding for finding qualified personnel to hire.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Cost concerns

Draft

Environmental Protection Workgroup Recommendation #58

Evaluate DEP Retention and Attrition of Staff and Succession Planning

Full recommendation:
It is recommended that DEP work with the civil service commission to evaluate the market to determine how to best attract and/or retain DEP staff, generally. DEP should investigate the role compensation competitiveness in the private sector may be affecting staffing issues and possible methods for reducing turnover due to this competition. Secondary and graduate education outreach should be conducted to attract new hires, especially from within educational institutions in the Commonwealth. In addition, DEP needs to explore succession planning methods in light of the relatively large contingent of DEP staff eligible, or nearing eligibility, for retirement. DEP should also encourage staff to remain within particular environmental program areas (e.g. water, waste, air, oil & gas), to allow for continued growth of programmatic expertise, rather than having staff move from one program area to another.

Relevant agencies:
DEP
Civil Service Commission (CSC)
Possible Legislature

Justification:
In certain regions, high DEP staff turnover has been attributed to competitive wages in the private sector, especially in oil and gas permitting and inspection jobs. Regardless of cause, turnover within DEP can have a "domino effect" on internal staffing, as existing staff applies for these newly open positions, sometimes making lateral moves across internal program areas (e.g. water permitting staff applying for newly open oil and gas permitting staff positions). This results in the loss of institutional knowledge beyond just the original position opening. In terms of acquiring new hires, the ideal candidates may be going to private industry positions and consulting jobs immediately after college reducing the hiring pool for new DEP employees. Finally, the institutional knowledge that is held by DEP employees nearing retirement is vital to ensuring consistency within programs, and much of this knowledge is often held only within the employees' minds, not reviewable documents.

Actions that would be required to achieve recommendation:
The DEP needs to evaluate the current cause for high turnover positions and open discussions with the CSC in order to assess obstacles and opportunities for increasing hiring flexibility. Conducting exit interviews with departing and retiring employees in a manner that would elicit honest responses. Outreach to colleges and universities would be required. Creation of methods or internal Standard Operating Procedures to memorialize information retained by those nearing retirement, in addition to proactive steps to encourage more documentation of processes and knowledge by all staff.

Draft

Challenges to achieving recommendation:
Possible funding for higher pay; efforts to re-classify positions to make them more proportionately competitive with the private sector. For a variety of reasons, key DEP staff may announce retirements in a manner that fails to leave sufficient time for succession planning.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Funding would be a factor. Communication and outreach to academic institutions.

Draft

Environmental Protection Workgroup Recommendation #59

Evaluate the Effectiveness of the Permit Decision Guarantee Policy

Full recommendation:
It is recommended that DEP complete an assessment of the effectiveness of the Permit Decision Guarantee policy with various stakeholders on a regular basis to ensure the policy is realizing its purpose and to determine areas for improvement.

Relevant agencies:
DEP

Justification:
Any program should be re-evaluated and improved as the program evolves. In particular, the program should be evaluated to ensure that:

- The permit review timelines are being met consistently; and
- DEP reviewers have adequate time and resources to ensure compliance with all statutes and regulations. Consideration should be given to all interested parties for suggestions of improvement.

Actions that would be required to achieve recommendation:
Set up an annual or bi-annual meeting dates, determine who should attend (Industry, Consultants, DEP review staff). Ensuring that the regulated community fully understands that the PDG will only apply "to those applications… that are complete, technically adequate, and address all applicable regulatory and statutory requirements."

Challenges to achieving recommendation:
Following through and making sure that it happens.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #60

Evaluate the Permit Decision Guarantee Priority Status Hierarchy

Full recommendation:
DEP should evaluate the current prioritization hierarchy that exists in PDG policy to ensure that pipeline projects are being properly assigned a priority status under the PDG policy II.B.1.ii, pertaining to applications that provide certain economic benefits to Pennsylvania and its citizens.

Relevant agencies:
DEP

Justification:
The PDG policy section II.B.1.ii. reads *"Applications necessary for economic development projects that create and/or retain jobs in Pennsylvania, leverage private investment in Pennsylvania, and/or provide significant economic benefit to Pennsylvania communities."*

Actions that would be required to achieve recommendation:
Through Harrisburg/Central Office, DEP would need to coordinate regional offices and assess what prioritization, if any, is being given to pipeline project applications.

Challenges to achieving recommendation:
Balancing pipeline project prioritization with all other projects within the state and ensuring that the prioritization guidelines are consistently applied for predictability across all regions.

Additional supporting material:
PDG policy
http://files.dep.state.pa.us/ProgramIntegration/PermitDecisionGuaranteePortalFiles/021-2100-001_PRP_and_PDG_Policy.pdf

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #61

Increase DEP Staff Training

Full recommendation:
DEP should increase availability and/or funding for regular training of permitting staff on technical items and new technologies, such as hydrology 101, hydrology refresher, HydroCAD modeling program and other technical programs, life cycle of a pipeline project – inception to permit to flowing gas, recommend Certified Professional in Erosion and Sediment Control CPESC), Certified Erosion Sediment and Storm Water Inspector (CESSWI), or Certified Professional in Storm Water Quality (CPSWQ) programs.

Relevant agencies:
DEP

Justification:
DEP staff is often required to review submissions that may contain voluminous and highly technical and complex calculation packages, utilizing software and programs not typically used by the DEP. It would help staff to be exposed to and learn most of the technologies that are used by industry in creating permit application packages. DEP staff should be afforded the same resources and training opportunities available to the counterparts in the private sector.

Actions that would be required to achieve recommendation:
Funding for professional development, training and certification programs and new technology exposure and outreach to Commonwealth universities or consultants to provide such opportunities.

Challenges to achieving recommendation:
Determining the best approach to training programs and the frequency of such trainings.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Cost could be a factor.

Draft

Environmental Protection Workgroup Recommendation #62

Eliminate Duplicate Questions in Erosion and Sediment Control General Permit (ESCGP-2) Notice of Intent (NOI)

Full recommendation:
The ESCGP-2 NOI should be reviewed to determine and remove duplications in questions (eg. thermal impacts, riparian buffers, etc.).

Relevant agencies:
DEP

Justification:
If redundancy is found, asking for the same information more than once within an NOI decreases efficiency in the permitting process.

Actions that would be required to achieve recommendation:
Reviewing and revising the application to remove duplicative sections or questions.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #63

Create Pipeline Erosion and Sediment Control Manual

Full recommendation:
It is recommended that DEP create an E&S Manual version that is specific to pipeline infrastructure development activities. A mobile-accessible version that is also searchable would further increase usability.

Relevant agencies:
DEP
County Conservation Districts

Justification:
The E&S Manual is quite large and many BMPs therein are irrelevant or not applicable to pipeline development activities. It would be helpful to both DEP staff, local governments and industry to have a smaller manual that only contains the items relevant to pipeline development activities for easier usability. A similar truncated document is the Underground Utility Construction Manual that is dated 2001. A web-based and/or app-based mobile version would further enable referencing the document while in the field, implementing the BMPs.

Actions that would be required to achieve recommendation:
Assessing and locating the relevant BMPs from the larger manual and creating a new manual. This could be achieved in conjunction with the recommendation to update this manual.

Challenges to achieving recommendation:
Providing a person/group to determine what should be in the manual. Training.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #64

Consider Limited Permit Review Assistance Using Qualified Contractors

Full recommendation:
The DEP should consider developing a third-party contractor system to review permits and submit analysis to DEP at times of heavy work load to prevent backlog and ensure compliance with PDG. In no scenario would third party reviewers approve the permit application.

Relevant agencies:
DEP

Justification:
In the event that DEP cannot meet workload requirements, additional qualified resources should be secured to complete the review and process permits. The qualified contractor would be providing recommendations to DEP, who would maintain all of the permitting authority.

Actions that would be required to achieve recommendation:

- Development of a qualification system for contractors (including professional licensing requirements).
- Development of a system to review for potential conflicts of interest.
- Development of performance standards for 3rd party reviews.
- Development of thresholds that would initiative the need for additional resources.
- Possible fee and registration structure for third party contractors.

Challenges to achieving recommendation:
Review laws and regulations to ensure third party contractors can be used.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Determining how to best use 3rd party reviewers without compromising program integrity or confidence of the general public.

Environmental Protection Workgroup Recommendation #65

Convene Annual Regulatory Agency Meetings

Full recommendation:
Recommend annual meetings between state, federal and other relevant agencies to discuss permit requirements, time frames, Environmental Hearing Board (EHB) decisions, etc. to ensure an effective and consistent process for permit authorizations.

Relevant agencies:
DEP
USACE
River Basin Commissions
USFWS
PGC
DCNR
PFBC
etc.

Justification:
The various agencies should be coordinating as to how each Agency's permit/authorization impacts the other and how recent appeals can impact them.

Actions that would be required to achieve recommendation:
Scheduling the meeting and having it organized with a thoughtful agenda.

Challenges to achieving recommendation:
Scheduling.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #66

Re-Assess and Update Standing Memoranda of Understanding (MOUs) Between State and Federal Agencies

Full recommendation:
Re-assess and update standing MOUs and determine whether new MOUs are warranted between state and federal agencies to make sure the permitting process works effectively and efficiently.

Relevant agencies:
DEP and any other relevant agency

Justification:
To ensure the process is working effectively and efficiently.

Actions that would be required to achieve recommendation:
Locating and reviewing all current MOUs. Identifying areas where new MOUs would be helpful.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #67

Incorporate Cumulative Impacts into Applications and Review Process

Full recommendation:
DEP should incorporate into its application and review process for a Chapter 105 permit an effective method of evaluating the "cumulative impact of this project and other potential or existing projects," to evaluate the impacts from current and future activities in the area of the project.

Relevant agencies:
DEP

Justification:
A heightened focus on the cumulative impacts that human activities have on our Commonwealth's resources will help to ensure that environmental impacts from pipeline construction are sustainable. There is a tendency in the review of environmental impacts to focus on the environmental effects one particular project will have, rather than on the capacity of an environmental resource to withstand all pressures imposed on it by numerous activities. As the Council on Environmental Quality reminds us, "Evidence is increasing that the most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time." In order to truly protect the environment, especially in light of the expected growth of the natural gas industry in coming years, it is necessary to focus not only on the effects of one particular project, but on the ability of the impacted resources to continue to function properly once <u>all</u> development is taken into account.

The current Chapter 105 permit review often falls short of fully accounting for cumulative impacts. In many cases, it appears that DEP considers only the primary and secondary impacts of the project under consideration, rather than all impacts from all human activity that affects the environmental resources in the area.

Actions that would be required to achieve recommendation:
Developing a consistent and cost-effective process for evaluating cumulative impacts as part of the review of Chapter 105 permit applications.

Challenges to achieving recommendation:
Cumulative impacts can be difficult and costly to identify and analyze properly. It will be important for DEP to develop a reasonable and effective method for evaluating cumulative impacts. DEP may find a model in the cumulative impacts analysis required in environmental impacts statements under the National Environmental Protection Act. DEP may also be able to use GIS technology to help streamline the process and minimize the burden on itself and regulated industry.

Draft

Additional supporting material:
25 *Pa. Code* § 105.14(b)(14); Council on Environmental Quality, *Considering Cumulative Effects under the National Environmental Policy Act* (January 1997), p. 1, *available at* http://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/G-CEQ-ConsidCumulEffects.pdf

Issues to address (such as cost, environmental impacts):
Finding an effective method for identifying and analyzing cumulative impacts.

Draft

Environmental Protection Workgroup Recommendation #68

Conduct Joint Agency Coordination Meetings During Pre-Application and Planning

Full recommendation:
For intrastate and interstate transmission projects, or projects that fall into multiple DEP regions, Corps Districts, or County Conservation Districts (depending on pipeline type), it is recommended that applicants and consultants hold joint combined coordination meetings throughout the pre-application and planning stages of the project.

Relevant agencies:
DEP
USACE
Conservation District

Justification:
There is a need for coordination on these types of projects, which would likely reduce preventable delays during the permitting process.

Actions that would be required to achieve recommendation:

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

Draft

Environmental Protection Workgroup Recommendation #69

Assess Oil and Gas Program Chapter 102 Training

Full recommendation:
It is recommended that DEP assess any current training programs that review Chapter 102 for permit reviewers. Training should be at least annual and extremely thorough to aid consistency and predictability in the review process. In addition, training need for applicants should also be assessed.

Relevant agencies:
DEP

Justification:
To address inconsistency in how reviews are completed and the type of comments that are received by applicants.

Actions that would be required to achieve recommendation:
DEP would need to initiate review of any current training and may need to create specific trainings for permit reviewers and/or applicants.

Challenges to achieving recommendation:
Ensuring consistency across regions.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Potential costs for training.

Draft

Historical/Cultural/Tribal Workgroup Recommendation #1

Improve Communication with Landowners

Full recommendation:
Increase trust/transparency and prevent miscommunication between agencies, Oil & Gas (O&G) industry and landowners by improving communication standards to clearly explain the cultural resource survey process, as well as provide details of the survey activities, data collection and artifact sampling that may take place on their property.

Relevant agencies:
Department of Environmental Protection (DEP)
Department of Conservation and Natural Resources (DCNR)
United States Army Corps of Engineers (USACE)
Pennsylvania State Historic Preservation (PA SHPO)

Target Audience:
O&G Industry, land agents and landowners.

Justification:
The objective is to create open communication between O&G companies and their land agents to better inform the landowners affected by their projects. Implementation of this practice will prevent miscommunication between O&G industry and landowners and ward off project scheduling delays by landowners who may deny access to their property due to communication breakdowns. Transparent and detailed communication will generate a positive community perception for the O&G industry, as well as for the state and federal agencies.

Actions that would be required to achieve recommendation:
During the landowner notification process for a project, the O&G industry outreach letter should include a detailed description of the survey activities, including types of excavation, excavation placement/intervals, excavation size/depth, artifact sampling, and architectural survey documentation. The letters should also include references to find more information online, and a hotline number for questions related to the survey.

Challenges to achieving recommendation:
Building trust and facilitating open and frequent communication between industry, agencies and individual landowners will require an organized effort. Industry buy-in is essential.

Additional supporting material:
Check list for landowner notification, online resources, example letters for landowners (see below and end of recommendation), PA SHPO Accession Form and Gift Agreement, and PA SHPO Rejection of Gift form.

Draft

Issues to address (such as cost, environmental impacts):
Ongoing, direct communication with landowners, O&G industry and agency representative. Actively work together to understand landowner's concerns and needs, as well as clearly represent the project goals.

Draft

Land Owner Communication Check List:

- Identify the O&G Company, Cultural Resource Consultant, Project Name and Regulatory Agencies.
- Identify the types of cultural resources surveys:
    - Phase I Archaeological Survey
    - Historic Architectural Survey
- Describe the nature of the archaeological testing:
    - Hand dug shovel test pits that are excavated using hand tools
    - Placement and measurements of shovel test pits
    - Shovel test pits will be back filled
    - Ground surface will be restored (as close as possible) to original condition
    - Survey will follow PA SHPO guidelines
- Describe the nature of the archaeological sampling:
    - If artifacts (i.e., arrow points, flake stone from creating stone tools, pottery, historic ceramic, glass, etc.) are found during the survey, they will be recovered by the archaeological consultants
    - Artifacts will be transported to the archaeological consultant's laboratory for analysis, reporting and temporary storage
    - Landowners can choose to donate artifacts to the State Museum; otherwise they will be returned to the landowner upon completion of the project and approval of the report by the PA SHPO and regulatory agencies
    - Describe the types and quantity of artifacts recovered from the property
    - Describe the process for donating artifacts to the State Museum, or rejecting donation
        - Accession Form and Gift Agreement
        - Rejection of Gift Agreement
        - Artifact inventory list
- Describe the nature of the architectural survey:
    - Documentation of above-ground resources over 50 year in age (i.e., buildings, bridges, stone walls, landscapes)
    - Above-ground resources within and adjacent to the project area
    - Notes, photographs and standard forms will be used to document the resources
    - survey will follow PA SHPO guidelines
- Provide contact information for the consultant, land agent, or O & G industry representative.

Online Resources:
http://www.achp.gov/docs/CitizenGuide.pdf
http://www.achp.gov/citizensguide.html
http://www.achp.gov/work106.html
http://www.portal.state.pa.us/portal/server.pt/community/phmc_home/1426
http://www.portal.state.pa.us/portal/server.pt/community/project_review_under_section_106_and_pa_history_code/3787/review_process/415082

Draft

Landowner Notification Letter

Example #1: Description of survey activities

Date

Landowner
Street
City, State, Zip

Reference: Archaeological and Historic Architectural Survey
Proposed Pipeline Project

Dear Landowner:

On behalf of Gas Pipeline Company, LLC (GPL), X Consulting Company (XCC) plans to complete a Phase I archaeological survey and historic architectural survey for the proposed pipeline project (project) that includes a portion of your property. This survey is being conducted to meet permitting requirements of the US Army Corps of Engineers (USACE).

Phase I archaeological survey includes subsurface excavation of small shovel test pits (STPs) that will be dug by hand using shovels and sifting screens. STPs will be placed at 50 feet spacing over the portions of the project area that are suitable for archaeological testing. STPs will measure approximately 1.5 feet in diameter and will extend approximately 1.0 feet (in upland settings) to 3 feet or deeper (in stream bank settings) below surface into subsoil, or archaeologically sterile soil. Upon completion of the STPs, the excavations will be backfilled and the ground surface will be returned as close to the original condition as possible. The survey will be conducted following the standards and guidelines developed by the PA SHPO for such projects.

If archaeological materials (e.g., artifacts such as flaked stone, arrow points, historic ceramics, etc.) are recovered, additional closely spaced STPs (16 feet) may be needed to determine the nature and size of the archaeological resources located within the proposed project area. A sample of the artifacts will be collected and transported to our laboratory in X City, Y State for analysis, reporting, and temporary storage.

If artifacts are recovered from your property, you may opt to donate the artifacts to the State Museum, which houses artifacts recovered from archaeological sites so that the artifacts may be used for future study. Alternatively, the artifacts will be returned to you upon completion of the project and approval of the archaeological survey report by the PA SHPO.

Additionally, historic architectural survey includes documentation of above-ground resources over 50 years in age, such as buildings, bridges, stone walls and landscapes. Historic architectural survey will be conducted within and adjacent to the project area. Above-ground resources will be documented with notes, photographs and standardized forms that follow the standards and guidelines developed by the PA SHPO for pipeline projects.

Draft

If you need additional information, please feel free to contact me at 123-456-7890 or by email at archaeology@xcc.com. I am happy to answer questions you may have.

Yours truly,

X Consulting Company
Principal Investigator

Draft

Landowner Notification Letter

Example #2: Results of survey of the property

Date

Landowner
Street
City, State, Zip

Reference: Archaeological Survey
Proposed Pipeline Project

Dear Landowner:

On behalf of Gas Pipeline Company, LLC (GPL), X Consulting Company (XCC) completed a Phase I archaeological survey for the proposed pipeline project (project). This survey was conducted to meet permitting requirements of the US Army Corps of Engineers (USACE). The survey identified a small prehistoric archaeological site within your property.

The artifacts from the archaeological site represents a small camp sites used by Native American before European settlement occurred in the region. The artifacts include waste flakes from stone tool manufacture, and fragments of stone tools. A description and count of the artifacts is provided in the attached artifact inventory.

The State Museum of Pennsylvania (Museum) houses artifacts recovered from archaeological investigations. You may choose to donate the artifacts to the Museum, where they will be available for future researchers. If you agree, please sign the enclosed Accession Form and Gift Agreement, and mail it to XCC. Upon receipt of the Gift Agreement, the collection will be delivered to the Museum for permanent curation. Alternatively, you may decide to reject donation to the Museum and have the artifacts returned to you. If you opt to reject donation, please sign the enclosed Rejection of Gift Agreement form, and return it to XCC.

Please return the appropriate Agreement form documenting your decision to donate or reject donation of the artifacts to the Museum. If you need additional information, please feel free to contact me at 123-456-7890 or by email at archaeology@xcc.com. I am happy to answer questions you may have.

Yours truly,

X Consulting Company
Principal Investigator

Draft

Historical/Cultural/Tribal Workgroup Recommendation #2:

Consult with Federally Recognized Tribes on Section 106-Related Projects

Full recommendation:
Lead federal agencies responsible for regulating pipeline projects should engage the relevant tribes/nations directly and early in the 106 process, whether it is the Corps' "Appendix C" permit areas (33CFR325, Appendix C) or the entire APE as per 36CFR Part 800 (i.e., on FERC projects).

From a legal standpoint, federally recognized tribes are distinct from non-federally recognized tribes in that the U.S. Government acknowledges that the former are politically sovereign. There are 15 federally recognized tribes/nations (tribes) who are all non-resident but claim legitimate ancestral ties to Pennsylvania.

Because these tribes are considered sovereign nations, consultation should be "government to government", i.e., between the federally agency and tribe(s). In some cases, tribes will accept a delegated consultation to a state agency as long as that delegation is formally approved and agreed to by such tribes and as long as the federal agency continues to recognize its full responsibility under Section 106 of the National Historic Preservation Act. An example is the Federal Highway Administration's (FHWA) delegation to Pennsylvania Department of Transportation (PennDOT's) cultural resource professionals for routine notifications and submittals of information and 106 findings to tribes. In this case, FHWA is still involved and will weigh in when there is consultation for resolution of adverse effects and for any agency disputes or controversies arising in the 106 process.

Tribes generally do not consider it appropriate for 106 consultations to take place solely between a private cultural resource professional or engineer employed by an energy company and a federally recognized Indian tribe. It is the federal agency's representative who should notify and consult and coordinate with tribes and that is what tribes expect to occur.

A list of those tribes with federal recognition who have ancestral ties to Pennsylvania can be found on FHWA and PennDOT's *tribal contacts list*. PennDOT's cultural resource staff regularly updates this list to keep all contacts and other information current. Please see the following link:
http://paprojectpath.org/docs/default-source/tribal-consultation-documents/list-of-tribal-contacts.pdf?sfvrsn=34

Relevant agencies:
USACE
Federal Energy Regulatory Commission (FERC)

Target Audience:
USACE and FERC, DEP, O&G industry.

Justification:
Engaging tribes (and other stakeholders) early in the process rather than after major decisions have been made builds trust and allows for meaningful tribal input on siting and other issues. Using the process as it was intended by the federal government shows the proper respect for the sovereign nations.

In addition, government-to-government consultation is required of federal agencies by

- the National Historic Preservation Act of 1966
- Executive Order 13175 (2000) Consultation and Coordination with Tribal Governments

Actions that would be required to achieve recommendation:
Federal agencies should have representatives who are more frequently engaged with tribes and who make the effort to contact them early in the course of the 106 process. Face to face conversations should take place on controversial projects and/or those involving tribal concerns.

Challenges to achieving recommendation:
Agency culture that drags its feet in regard to tribal consultation and has traditionally notified tribes late in the process or has often only included them in notices for the general public.

Additional supporting material:
Guidance from the Advisory Council for Historic Preservation's (ACHP) *Office of Native American Affairs* (ONAA) is available on the ACHP's website: http//www.achp.gov.

Helpful examples of ONAA documents relevant to these issues include, but are not limited to, the following:

http://www.achp.gov/docs/consultation-indian-tribe-handbook.pdf

This is a comprehensive handbook
http://www.achp.gov/delegationmemo-final_7-1-11.pdf

This document discusses proper procedures for—and limitations to—delegation of consultation responsibility.

Issues to address (such as cost, environmental impacts):

- There should be no additional costs involved other than those that may commonly occur when setting up group meetings, conference calls, sending out notifications, information letters, etc.

- It is important to note that tribal consultation is set up differently than other consulting party coordination and both tribal consultation and official consulting party consultation are made distinct from the general public engagement/participation requirements in the 106 regulations (36CFR800). In addition, federally recognized tribes and the government-to-government relationships are distinct from those of non-federally recognized tribes and other interest groups.

- Not all of the 15 tribes with ancestral ties to Pennsylvania are interested in all areas of the Commonwealth. Although there are some tribes who do express interest statewide, most are interested in certain regions only, usually as defined by a particular group of counties. Agencies should proactively contact tribes to determine areas they are interested in for future projects and potential future projects. Given the estimated acceleration of gas pipeline and related projects projected by the gas pipeline task force, carrying out tribal consultation in an appropriate manner may be critical.

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Historical/Cultural/Tribal Workgroup Recommendation #3

Consult with Citizens' Groups, Including Heritage and Historical Organizations and Non-Federally Recognized (NFR) Tribes for Oil and Gas Development

Full recommendation:
Increase trust, transparency and communication between agencies, O&G industry, and citizens groups by augmenting current Best Practices for

- Identifying and notifying citizen groups in advance of application process;
- Formally seeking input and consulting with citizen groups on significant resources; and
- Developing guidelines for standardized, meaningful notification and consultation with citizen groups. Examples of Citizens Groups: Local/County Historical Societies, Preservation PA, among others.

Relevant agencies:
DEP
DCNR
USACE
PA SHPO

Target Audience:
Oil & Gas Industry, above listed agencies.

Justification:
Implementation of this practice will foster goodwill within the communities affected by O&G industry projects, demonstrate "good neighbor" practices and social responsibility for both the O&G industry and state and federal agencies, facilitate smart routing/design for O&G projects, and develop better tools to address effects on cultural resources.

Actions that would be required to achieve recommendation:
In the pre-application/proposed alignment stages of a project, the O&G industry should identify and notify citizen groups. The notification process should include public notice letters and announcements in local media (i.e., newspaper, local television, radio). By formally consulting with citizen groups, O&G industry can gain insight to resources that are considered significant locally and that may not be previously recorded in PA SHPO files. Active consultation will facilitate smart routing/design, as well as minimize risks for impacts on cultural resources and project scheduling. Consultations should involve a minimum of three (3) public meetings that are publicized in local media. Guidelines for notification and consultation with NFR tribal organization can be developed by Pennsylvania Historical and Museum Commission (PHMC) and enforced by the regulatory agencies.

Challenges to achieving recommendation:
Building trust and facilitating open and frequent communication between industry, agencies and citizen groups. Industry and agency buy-in would be needed.

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Additional supporting material:
PA SHPO list of consulting parties; check list for notification and consultation.

Online Resources:
http://www.achp.gov/docs/CitizenGuide.pdf
http://www.achp.gov/citizensguide.html
http://www.achp.gov/work106.html
http://www.portal.state.pa.us/portal/server.pt/community/phmc_home/1426
http://www.portal.state.pa.us/portal/server.pt/community/project_review_under_section_106_and_pa_history_code/3787/review_process/415082
http://paprojectpath.org/penndot-crm/tribal-consultation

Issues to address (such as cost, environmental impacts):
State agency and industry buy-in would be essential, as state laws do not require it. Additional funds may be required to supplement existing positions.

The notification and consultation process should be added to the Project Schedule/Timing. Notification would take place during the pre-application process, once a proposed alignment/location is announced. Three (3) public meetings should also take place (over the course of 3 months) in advance of environmental and cultural field studies. Groups should be solicited as potential formal consulting parties by the federal agency and PA SHPO at the start of the 106 process.

NOTE: Notification and consultation with NFT differs from that with Federally Recognized Tribes because:

- Federally Recognized Tribes are sovereign nations;
- NFT are not sovereign nations;
- Consultation with Federally Recognized Tribes is a legal requirement for a federal agency regulating a project;
- Consultation with Federally Recognized Tribes must be conducted from government to government (see workgroup recommendation II above); therefore, the lead federal agency must conduct all communication,; O & G Industry and Consultants would not carry on the consultation process with Federally Recognized Tribes; and
- Consultation with NFT is not a legal requirement and obligation for state agencies.

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Historical/Tribal Workgroup Recommendation #4

Implement Best Practices for Upstream and Midstream Oil and Gas Development that Fall Outside of USACE Permit Areas

Full recommendation:
Encourage/Raise Awareness of Voluntary Best Practices by the O&G industry to minimize risk of bad press and project delays due to impacts to significant archaeological sites and, especially, legal liability for damage or destruction of sites containing human burials and historic cemeteries.

Relevant agencies:
DEP
USACE

Target Audience:
Industry, land Agents, regulatory agencies, and stake holders.

Justification:
Manage risks to cultural resources (limit loss of undiscovered significant archaeological and historic sites) and delays resulting from unanticipated finds, generate community goodwill, and demonstrate corporate social responsibility.

Actions that would be required to achieve recommendation:
Implementation of actions to consider significant cultural resources that occur beyond the reach of the federal agency's (USACE) jurisdictional threshold. Work with Leaders in Energy and Preservation (LEAP) to manage risk, to benchmark industry performance and improve practices over time, to support development and gain access to new decision-making tools, and to allow informed decisions in facility siting alternatives. LEAP will work with the PA SHPO and other data repositories to collect and manage data about significant archaeological resources, sites of cultural significance to local communities and Indigenous peoples, and historic resources (buildings, industrial sites, and bridges, etc.) and deliver information, tools, and services that help government agencies, corporations, and preservation organizations make informed decisions about managing our collective cultural heritage. Voluntary Best Practices would also apply to areas subject to the 10 acre exemption rule (DEP policy that does not require applicants to consult with PHMC where there is no federal involvement in an undertaking of 10 or fewer acres of disturbance). This arbitrary policy needs to be revisited with respect to potential impacts to archaeological and historic properties, most of which are far smaller than 10 acres in size.

Cultural Resources Pre-Screening/Background Research:
Project screening will serve to identify potential areas of sensitivity for cultural resources within a project's Area of Potential Effects (APE) and provide a tool to not only limit risk to the industry in regards to unanticipated finds, such as historic cemeteries, but would also limit a loss of undiscovered significant resources. Screening or background research would benefit early route development and design decisions when they have information on potential development constraints that may add time to the compliance process.

By utilizing proposed route development project location mapping, a Qualified Professional will perform a file review of the National Register of Historic Places on-line database; the PA SHPO Cultural Resources GIS database (CRGIS) digital archives and paper files, local historical organizations, etc. to identify known historic properties.

Pre-Screening/Background Research:

- Is the cultural resources screening being performed by a Qualified Professional, or professionals who meet or exceed the Secretary of Interior's Standards for Professional Qualifications as outlined in 36 CFR Part 61 Appendix A.
- Previous disturbance impacts (strip mines, existing utilities, road easements, etc.).
- Historic land-use: i.e. historic mapping and aerial documentation.
- Properties listed on the National Register for Historic Places (NRHP) present.
- Properties formally determined eligible for listing on the NRHP present.
- Structures present within the APE.
- Potential historic rural landscapes, including: historic tree lines, hedge rows, line of sight, etc.
- Properties included in previous architectural or archaeological surveys.
- Historic cemeteries present (family or community).
- Previously documented archaeological resources.
    - Within the APE
    - Within close proximity to the APE
- Sites of potentially "Critical Importance" to the local community.
- Soil Types.
    - Floodplain or Hydric Soils
    - Upland/Well-Drained Soils
- Topographic setting conditions: landform types present.
- Conduct field view of proposed APE to "ground-truth" environmental perimeters.
- Written summary of file review results for authorized end-user, identifying known cultural resources and potentially sensitive areas to aid in development and design.
- Recommendations for any additional cultural resources activity.

Challenges to achieving recommendation:

Industry buy-in for Voluntary Best Practices. Terminology associated with Appendix C. The Section 404 Permit of the Clean Water Act (CWA) regulates the discharge of dredged or fill material into waters of the United States, including wetlands.

The basic premise of the program is that no discharge of dredged or fill material may be permitted if:

- A practicable alternative exists that is less damaging to the aquatic environment;
- The nation's waters would be significantly degraded. The USACE, who enforces Section 404 provisions, puts heavy emphasis on avoiding these jurisdictional wetlands resources and the stream crossings, and decide if any resources are impacted.

Pre-application meetings are held to discuss pipeline route development to avoid these resources if impacts are to occur as a result of the project. Although these potential pipeline re-routes

reduce impacts to the watercourse resources, they do however minimize the area in which archaeological surveys will be required based on the Appendix C regulations. Good faith efforts on the part of Industry to comply with USACE permitting requirements fail to manage Industry risks and impacts to significant resources located between Corps jurisdictional areas on any given pipeline route.

Additional supporting material:
At a minimum, due diligence requires Industry to conduct in-depth literature searches for the entire undertaking's area of potential effect to ensure against previously documented resources and to aid in the development of predictive models for potential upland resources within the proposed corridor. www.energyandpreservation.org

Issues to address (such as cost, environmental impacts):
Cost of development of screening tool that would allow energy companies to engage in more robust early stage planning with regard to cultural resources would be borne by industry in exchange for credits to future subscriptions for access to the tool. We would anticipate access to state-wide database of archaeological sites and historic built environment and would anticipate access to the forthcoming PennDOT statewide predictive model.

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Historical/Cultural/Tribal Workgroup Recommendation #5

Conduct Early Outreach with Affected Communities

Full recommendation:
Institute the process of early engagement with affected communities to gather data. Conduct outreach before preliminary siting of pipelines. Contact the Pennsylvania Land Trust Association to determine the local natural/historical resource organizations, Planning Commissions for all resources, local historical societies and preservation groups. This should occur at the inception of planning to insure all parties have the information they need.

Relevant agencies:
Local Government
PA SHPO

Targeted Audiences:
PA SHPO (to facilitate if needed), the Industry, and the legislature (if this recommendation warrants any regulatory changes).

Justification:
Alleviates bottlenecks, provides for informed choices, and ensures affected communities have a voice.

Actions that would be required to achieve recommendation:
Education and voluntary adoption of process or legislative change. Post early planning for pipelines on a central website/clearing house. Simple change to first correspondence to landowners – add a sentence such as "studies could include ground disturbances."

Challenges to achieving recommendation:
If this becomes regulatory, then legislation may be perceived as slowing approvals; however, if this is conducted at the planning stage prior to initial siting, it may speed approvals.

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
Additional cost to Industry will be offset by the savings in subsequent research and negotiations.

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Historical/Cultural/Tribal Workgroup Recommendation #6

Conduct County-Based Siting and Mitigation Research

Full recommendation:
Alter the approach to inter-county pipeline projects by conducting advance research on resources and limits on resources by county. To that end, work with county planning commissions and non-governmental organizations (NGOs) to identify local limiting factors. Example: There may be large forest blocks in one county vs. severely limited acres of forests and contiguous forests in another, resulting in greater impact from siting in forests in the latter county. Create a database of advance issues. Example: Counties with large numbers of archaeological and historic resources preserved as part of NGO and government efforts. Structure mitigation based on local constraints.

Relevant agencies:
DCNR
PHMC
DEP
Department of Community and Economic Development (DCED)
County Governments and Planning Commissions

Target Audience:
The O&G Industry.

Justification:
Streamlines reviews, reduces environmental and cultural impacts (protected lands protect both cultural (historical and archaeological) resources and environmental resources), and facilitates appropriate mitigation partners to achieve meaningful mitigation strategies with local benefit.

Actions that would be required to achieve recommendation:
Voluntary implementation, coordination, or regulatory checklist which includes meeting with local planning commissions and NGOs before applications or in FERC filings prior to pre-applications.

Challenges to achieving recommendation:
Resistance by the industry to this method of sketching out preliminary routes based on local variables; variety of levels of planning in different counties.

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
Since the Planning Commissions and NGOs are giving the industry the information the industry needs to make sound choices there is really no cost other than those of meetings and calls. This approach requires a shift in initial analysis and industry culture.

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Local Government Workgroup Recommendation #1

Communicate Early and Often with Local Government Officials

Background:
From the development of new pipelines, to the operation and maintenance of existing pipelines, the flow of information between pipeline companies and affected municipalities is fragmented and inconsistent at best. To ensure that communication is fluid and timely among stakeholders (i.e. local, state, federal governments; pipeline companies; residents, etc.), we need to establish best management practices (BMPs) before the communication process even starts. It is important that pipeline companies communicate *early and often* with local officials since pipeline infrastructure projects have localized components. Through reliable and transparent means of communication, trust can be established between pipeline operators and local government officials; coordination can assist with project timing and meeting budgetary limits, while in accordance with all government relations.

To accomplish this goal, Pennsylvania should create a standardized "checklist" for pipeline applicants, which outlines the procedure for entities that intend to construct pipelines within the commonwealth.

Full Recommendation:
It is important that companies constructing pipelines or related surface facilities communicate early and often with the local officials of each municipality where any construction may take place.

> (1) The first step would be that the gas company contacts the municipality. Ideally this should be a person-to-person contact, or designated individuals that would work with the municipality for the duration of the pipeline project. Local elected officials should be notified about a potential project before there is a need for the pipeline company to ask for any approvals from the municipality. This communication concept would be similar to an "Ambassador Program," where each party would relay information back to their respective group. Pipeline companies should keep in mind that not all elected officials are well versed in the pipeline construction process, and there may be a need for education and informational sessions about the project.
>
> (2) After the initial contact is made, municipalities would be in a better position to respond to inquiries from residents about the project, which should not be construed as the municipality taking a position on it. Communicating with the municipality and educating residents can make for the project to be a positive experience. Without proper communication, the media or other outside groups can influence residents and cause friction between the pipeline company and the residents and even the municipality. Communication should be frequent and open during the entire project. Pipeline companies should not only share good news and project milestones, but also issues that could end up in the media, as a way to maintain a good, working relationship with the municipality. It is important for the pipeline company to provide any relevant documentation to the municipality as soon as it becomes available; this includes any

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anticipated maps of routes, schedule of projects, facility sites, etc.). Again, this is essential to keep residents educated and open to viewing the project as an asset to the community. Additionally, the pipeline companies are encouraged to interact with the community just as the local businesses do, and support community events, teams, causes, etc.

(3) An affected municipality should be given the opportunity to sit in on the review process of a proposed pipeline application with the Pennsylvania Department of Environmental Protection (DEP). This invitation would be extended to the municipality at each stage of the permit process; municipalities may also decline to attend any of the review stages. Declining to attend a review stage does not disqualify a municipality from attending future stages of the review. At the present time, local governments have a very limited role in siting and permitting, depending upon the extent of Federal Energy Regulatory Commission (FERC) or Public Utility Commission (PUC) jurisdiction. Local officials have a significant amount of insight as far as any impact to the community or potential obstacles; local officials can provide meaningful input during the permitting process.

Additionally, a map of potential routes of the proposed project should be submitted with the permit application in order for the municipality to give the most valuable feedback and for DEP to have substantial information to grant the applicant the permit, as stated in Title 71 P.S. sections 510-515 *(municipal notification)*.

(4) Communication needs to be a constant throughout the entire project between the pipeline companies and the municipality. Individuals that act as the point of contact for any company may change; therefore it's important for pipeline companies to keep municipalities updated on who the appropriate point of contact is for that particular pipeline project.

(5) Not only should the pipeline company and municipality maintain open lines of communication but county, state, and federal agencies need to relay information to one another as well. Again, this should be constant and open throughout the entire process, not just the initial phase.

(6) At the completion of project, the pipeline company shall provide maps of the pipelines (a process that would be similar to laying sewer lines) and any other relative documentation to keep on file at the municipality. Any updates to maps or relevant documentation, including more details, should be communicated to the municipality. This information would then be available to the community but does not release any party from the requirements of the PA1Call System.

Williams Companies has expressed concern about this recommendation: Most of industry generally disagrees with this concept. There is concern that individuals would use these maps as a resource to avoid the PA1Call System, greatly increasing the potential for third party damage to our pipelines or the likelihood of a catastrophic event.

(7) A registry of **all** pipeline companies that receives permits shall be established and maintained by the state, just as the PUC does with pipeline companies that receive public utility status under the provision of The Gas and Hazardous Liquids Pipelines Act *(Act 127 of 2011).* This list would also include a contact person for each specific pipeline and pipeline project. If lines are sold or the project is transferred to another company, the contact information must be updated with the state within 7 days.

Relevant Agencies:
The municipality affected by the pipeline project
County Conservation District affected by pipeline project
PUC
DEP
FERC *(depending upon the project)*
Pipeline & Hazardous Materials Safety Administration (PHMSA)
Army Corp of Engineers *(depending upon the project)* (USACE)
PA Historical and Museum Commission *(depending upon the project)* (PHMC)

Justification:

(1) Currently the standardized procedure for the entire pipeline application permitting process is fragmented and lacks sufficient enforcement. All too often pipeline companies approach landowners about potential projects but neglect to inform the municipality. Affected landowners then ask their local officials what the municipality is going to do about their concerns, but the municipality has no knowledge because they were not informed or notified by the pipeline company early in the process. By the time money is invested and DEP permits are secured, the municipality is out of the loop of information because the company is already in the process of starting the project and the negotiations have already begun or possibly even been completed between the pipeline company and the landowner. If local officials are to respond to their residents, BMPs should be established relative to a process for communications between the pipeline company and the municipality.

(2) Furthermore, pipeline companies currently are **not** required to submit relevant documentation or mapping regarding the pipeline project to the municipalities. Typically, a municipality can find information about a project once a pipeline company applies for a DEP permit, but this information must be sought out; it may not have been provided to the municipality. Since DEP requires permits for earth disturbances, there is some sort of process for gathering lines, but again, we need a standardized "checklist" that encompasses all stakeholders in the pipeline process, especially municipalities. At the very least, a highway occupancy permit or agreement should be standardized for townships so that gathering lines can be accurately accounted for, just as pipelines are accounted for through DEP permits.

Actions That Would Be Required to Achieve the Recommendation:

(1) Creation of a standardized "checklist" for pipeline application, which includes the affected municipalities.
(2) Establishing BMPs for communication among stakeholders.

Issues to Address (Such as Cost, Environmental Impacts, etc.):
Determine if landowner information pertaining to a pipeline project is subject to the Right To Know Law (RTKL) if the pipeline company provides this information to the township or would this be a homeland security issue?

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Local Government Workgroup Recommendation #2

Minimize Impact on Local Roads

Background:
One of the most essential functions of local government is ensuring that their right-of-ways are safe and passable for the traveling public while meeting the Pennsylvania Department of Transportation's (PennDOT's) standards. Roads play a crucial role in the pipeline process. Intensive heavy truck traffic, including the hauling of heavy equipment, has an adverse impact on local roads, highways, and bridges. This negative situation is exacerbated by the fact that a significant portion of such hauling activity occurs on local roadways that were not constructed for this type and amount of truck traffic. Additionally, these roads are exposed to extreme fluctuations in weather throughout the year, which results in rapid deterioration and requires constant maintenance and upkeep.

Full Recommendation:
It is important that companies constructing pipelines or related surface facilities communicate early and often with the local officials of each municipality concerning the use of local roads.

1. In order to provide safe and reliable transportation for all travelers, all pipeline companies shall execute an excess maintenance agreement with the appropriate municipality for all roads used by the pipeline company in accordance with PennDOT's standards. The municipality shall work closely with the industry and its subcontractors to ensure that any damage to a local road is repaired as soon as possible to at least pre-existing conditions. Bonding rates, which are the insurance policy that the damage will be repaired, have not been increased since the early 1980s and do not reflect the current costs of paving a road, let alone rebuilding it. In addition, the regulations currently do not include a mechanism to recover all costs associated with the work of the pipeline companies. This includes additional staff to constantly inspect road conditions and monitor repairs. This goal can be accomplished through the execution of a standardized ordinance or agreement that provides for the costs of excess maintenance. This goal may also be accomplished through a standardized highway occupancy permitting process or a highway occupancy agreement.

2. Currently, highway occupancy permits are granted on a municipality by municipality basis, but not all municipalities have a highway occupancy permit procedure in place.

3. Municipalities should have the authority to require and establish either an escrow fund or acceptable "letter of credit" in-lieu of a bond to ensure that roadwork is completed in a timely manner and completed in accordance to established standards.

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4. PennDOT regulations and standards require the local government to comply with these regulations. In order to meet these standards efficiently and effectively, we recommend that the pipeline company and municipality coordinate road projects in order to alleviate lengthy road closures or multiple road projects performed on the same road or roads that would be affected by the pipeline project. It would also reduce the cost of road repairs, saving the municipality from spending more taxpayer money. It is suggested that the municipality and the pipeline company work together to verify the condition of the road prior to construction. This could be accomplished by recording video of multiple angles of the road. This step is necessary to guarantee the road and its right-of-way is returned to municipal standards.

5. After securing the highway occupancy permit, the pipeline company shall notify the municipality at least 24 hours in advance before performing any pipeline construction that involves working in a local road right-of-way.

Relevant Agencies:
The municipality affected by pipeline project
County Conservation District affected by pipeline project
DEP
FERC *(depending upon the project)*
PHMSA
PUC
USACE *(depending upon the project)*
PHMC *(depending upon the project)*

Justification:

(1) Establishing BMPs for roadwork as they relate to these projects would substantially assist municipalities in meeting their obligation to provide a safe and reliable transportation network. A standardized highway occupancy permitting process creates uniform street opening standards, including opening, cutting, excavating, grading, boring, crossing, installation or disturbance upon, in, under, or across a Township road or road right-of-way. Such standards are intended for any street openings on Township roads and would provide municipalities with appropriate tools to regulate and manage such occurrences.

(2) There are no existing regulations that require the municipality to perform the necessary roadwork after the pipeline work is completed. In most cases, the pipeline company will contract with a road paving company or other contractor to perform the work to PennDOT and municipal standards and for any inspection. This scenario meets the existing regulations and in most cases cost the pipeline company less money in meeting their obligation.

(3) All roadwork completed by the pipeline company or its contractor has to be performed to PennDOT regulations/standards in order for the municipalities to receive Municipal Liquid Fuels payments from the state for that road. The local government's existing authority to regulate the opening of local roads, regardless of PUC or FERC jurisdiction, needs to be maintained.

Actions That Would Be Required to Achieve the Recommendation:

(1) This would require that regulations be amended to specifically require excess maintenance agreements as a necessary tool to administer and enforce weight limits used by heavy haulers.

(2) This would require that existing statutes or PennDOT regulations be amended as necessary to implement the desired changes.

Issues to address (such as Cost, Environmental Impacts, etc.):

There may be some financial impact from increasing bonding amounts required of those entities that damage right-of-ways. Municipalities may experience decreased cost exposure due to the limited ability to execute a bond that will actually repair the damages.

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Local Government Workgroup Recommendation #3

Allow Local Regulation of Surface Facilities

Background:
Surface facilities can have different impacts than the underground pipeline particularly when placed in residential neighborhoods as opposed to non-residential zones where they may be better suited. Local municipalities should have the authority to regulate these facilities, unless they have received a certificate of public convenience from the PUC. We understand that municipalities must accommodate the need for surface land uses affiliated with pipelines while at the same time protecting the health, safety and welfare of the citizens of the municipality. Additionally, this means that existing pipelines and subdivision and land development plans would also influence siting and construction of new surface facilities. As local officials, it is their responsibility to ensure the location of surface land uses affiliated with pipelines are in compliance with applicable industry standards and requirements, including Federal law, FERC; and Pennsylvania State law, including the Pennsylvania Oil and Gas Act and relevant state and federal case law and local zoning ordinances.

Full Recommendation:

(1) Surface land uses affiliated with pipelines shall be permitted as a principal use by right in designated districts where underground pipelines exist or are proposed. Such uses shall meet the dimensional requirements, including but not limited to area and bulk standards, of the designated district. Applicants are required to demonstrate to the satisfaction of the municipality that the requirements meet the standards for surface land uses affiliated with pipelines.

(2) Local officials should be consulted and given the opportunity to comment and participate in the state permitting/siting process, as well as the opportunity to sit in on the review process of a proposed pipeline facility with the DEP. The local officials will have the greatest amount of insight of the impact to the community and any potential obstacles; they could provide meaningful input during the siting process.

(3) The municipality shall have the authority to regulate a surface facility, regardless of what the surface facility is connected to (e.g. transmission vs. gathering lines).

(4) All surface facilities' siting and safety may be regulated by the municipality, either through their zoning ordinance or a stand-alone ordinance. Federal regulations should be cited in the ordinance, including Title 49 Chapter 192.3, which establishes setbacks for surface facilities. These regulations would be adopted and incorporated as part of the model language.

(5) The state should provide to the municipalities BMPs as it relates to siting and safety guidelines for surface facilities. Sample ordinances or sample language should be provided to municipalities so that they may adopt ordinances that regulate surface facilities.

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Relevant Agencies:
The Municipality affected by pipeline project
County Conservation District affected by pipeline project
DEP
FERC *(depending upon the project)*
PHMSA
PUC
USACE *(depending upon the project)*
PHMC *(depending upon the project)*

Justification:

(1) Municipalities are authorized to regulate the siting of surface facilities through their individual zoning and subdivision ordinances. For this reason, pipeline companies prefer to rely on state or federal standards. FERC and state law supersede local government **only** in those areas that are specifically expressed in the law. Local officials should have input in the siting process because they are the most knowledgeable about the community and its economic and environmental makeup. They are the ones who answer directly to residents.

(2) No state or federal land use standards exist for compressor or pumping stations (i.e. fencing, cages, locks) but they may be included in the local ordinance. Local ordinances may regulate *where* stations can go, but there are no standardized construction requirements. Any structure that is created to house pumping or compressor stations should be required to comply with the Uniform Construction Code.

(3) It is up to the municipality to minimize aesthetic, nuisance and visual impacts of surface land uses affiliated with transmission pipelines through proper design, siting and vegetative screening through their zoning and subdivision ordinances. Local zoning ordinances may preserve the rural, suburban and urban character of neighborhoods adjacent to surface land uses affiliated with transmission pipelines.

Actions That Would be Required to Achieve the Recommendation:

- Sample ordinances or sample language should be provided to municipalities so that they may adopt ordinances that regulate for surface facilities.

- DEP should provide appropriate suggested land use practices to municipalities so that the municipality can plan for surface facilities according to the agency's standards, especially for communities that do not have zoning.

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Natural Gas End Use Workgroup Recommendation #1

Create A State Level Permit Coordinator

Full recommendation:
A company proposing a project requiring permitting may provide additional funding to the State to help to defray the costs associated with streamlining the permit application and review process via intra- and inter-agency coordination. The State provides a single point of contact with experience in permitting complex projects, including natural gas pipelines and/or industrial sites, who coordinates the efforts of all the relevant State permits for the project.

This recommendation already has a foundation set forth in the DEP, Office of Program Integration's *Policy for Permit Coordination* (021-2000-301), which created the Pre-Application Process and Permit Decision Guarantee programs.

To the extent practicable, projects for *new construction, brownfield redevelopment,* and requests that will result *in the creation of new permanent jobs in Pennsylvania* will be given highest consideration, expanding upon the Permit Review Hierarchy set forth in the *Policy for Implementing the Department of Environmental Protection Permit Review Process and Permit Decision Guarantee*, 021-2100-00.

- Funds received by the permit applicant may be used to:
  - Retain former or retired government employees as temporary contractors, to conduct application and permit reviews, on a project-by-project basis.
  - Offset current employee overtime compensation on expediting an application, permit review, modification, etc.
  - Grow the agency's understanding of industry requirements and timelines, through training of current or additional personnel.

This process would not eliminate or modify any requirement set out by state, local, or federal regulations. Permit/s approved for expedited permit processing must meet all regulatory requirements, including required public comment periods and any required review by all relevant agencies.

Relevant agencies:

- The Permit Coordinator would be assigned based on the main project driver (Oil & Gas, Brownfields, etc.), coordinating all State permits required for the project, and would serve as a liaison with Federal and Local agencies as well.

Justification:
Currently, the permitting process in PA is not dependable or predictable.

- Government staff must manage budgets, limited staffing, emerging technologies, training, and other resources, making efficient permitting and working with industry partners a challenge. Pennsylvania's DCED is dedicated to promoting private investment in the State. *Extra funding on a project-by-project basis would alleviate many of these issues, without being a burden on taxpayers.*
- Communities want certainty about where a project stands in its development, without being dragged out into a long, unpredictable process.

- Non-Government Organizations (NGOs) want assurance that government staff (permit reviewers and officials) have *sufficient time and expertise* to review permits; as well as to monitor and enforce regulations. A dedicated, experienced Permit Coordinator would fulfill that need.
- Industry is dealing with unpredictable timeframes and delays due to the permit reviewer's lack of understanding/knowledge about the project itself, permits being reviewed by several different permit reviewers, or just a backlog of work. The arrival of a new pipeline with adequate natural gas supply must be timed well with Site re/development for a project to be financially successful. The current uncertainty and unpredictability encourages companies to operate outside of Pennsylvania, impacting our local, regional, and state economies. *Result: missed opportunities in terms of new infrastructure*

Actions that would be required to achieve recommendation:

- Develop and publish a fee calculation.
- Establishing the funding account.
- Upgrade the existing Pre-Application Consultation tool (PACT) to State-level. Use it as a gateway to find not only the list of potential permits likely required for the project, but also to opt into the Expedited Permit Program, and to help assign a Permit Coordinator that best fits the overall project scope.
- Build a database of potential, qualified Permit Coordinator applicants (contract employees or other personnel) interested in assisting on a project-by-project basis.
- Train PA State employees and contractors (as necessary).
- Train industry on the improved process, develop Fact Sheets about the program.

Challenges to achieving recommendation:

- Creating State-level oversight of the Permit Coordinators.
- Searching for qualified individuals with the relevant experience, willing to work on a contract, project-by-project basis (to supplement existing employees).
- Providing relevant training opportunities for current/former State employees in relevant agencies.

Additional supporting material:

- *Ideas To Empower America's Emerging Shale-Based Manufacturing Renaissance,* American Shale & Manufacturing Partnership, January 2015.

- **Louisiana DEQ: *Expedited Permit Program***
  http://www.deq.louisiana.gov/portal/PROGRAMS/ExpeditedPermitProgram.aspx
  http://www.deq.louisiana.gov/portal/Portals/0/assistance/Chapter%2018.pdf

- **Kentucky DEP: Division of Compliance Assistance (DCA)**
  Created specifically to coordinate, streamline, and therefor expedite the permitting review process across the agency (multi-department):
  http://dca.ky.gov/DCA%20Resource%20Document%20Library/TypicalPermitsAtaGlance.pdf
  http://dca.ky.gov/DCA%20Resource%20Document%20Library/CommonPermitsKYDEP.pdf

Natural Gas End Use Workgroup Recommendation #2

Create Regional Energy Corridors and Energy Action Teams

Full recommendation:
Build off of Philadelphia, Pittsburgh and Williamsport's strategic plan to develop energy hubs and energy corridors across the Commonwealth, while utilizing already established infrastructure at the DCED within the Governor's Action Team (GAT). Build energy specific teams within the regional GAT offices around the Commonwealth.

Relevant agencies:
DCED
DEP
Department of Transportation (PennDOT)
Department of Agriculture (Ag)

Justification:
In an effort to entice infrastructure build out, end use expansion or new company location DCED and GAT would use a dedicated employee dedicated to energy and end use.

Actions that would be required to achieve recommendation:

- Model plan after Philadelphia, Pittsburgh and Williamsport to regions around the Commonwealth, that mirror DCED action teams already established.
- Build plan within the GAT office.
- Secretaries from affected agencies will need to develop criteria and definitions.
- Possible legislation.

Challenges to achieving recommendation:
Budget

Additional supporting material:
The GAT is a group of experienced economic development professionals that serve as a single point of contact for companies looking to establish new business operations in Pennsylvania or companies considering retention and/or expansion of existing Pennsylvania operations.

GAT provides businesses with the information needed to make an informed assessment of the Commonwealth and its communities as a business location. GAT is able to:

- Identify suitable properties for client companies by utilizing PA Site Search our property database, and working with our statewide network of local partners.
- Provide information on available workforce, infrastructure, taxes and the quality of life.
- Coordinate and host site tours with client companies
- Make appropriate introductions to local economic development groups and elected officials.

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Interagency Coordination

- As a one-stop-shop, GAT will coordinate the involvement of all Commonwealth agencies in a business development project (DEP, PennDOT, Department of Labor and Industry (L&I), Department of Revenue, and other agencies as necessary).
- Facilitate introductions and pre-application meetings.
- Expedite permit review and approval.

Access to Economic Development Incentives

GAT serves as the primary contact for businesses wishing to access the Commonwealth's various economic development incentive programs. GAT performs a thorough due diligence review of each project, taking into consideration the following:

- Overall economic impact of the project.
- Company's financial condition.
- Validity of the company's business model.
- Strength of commitments for private financing for the project.
- Competitive posture of the project.

Draft

Natural Gas End Use Workgroup Recommendation #3

Create Energy Opportunity Zones

Full recommendation:
Add to the already established Keystone Opportunity Zone (KOZ) program, an Energy Opportunity Zone (EOZ) program.

Relevant agencies:
DCED
DEP
PUC
Department of Revenue

Justification:
In an effort to continue to attract businesses, including end users of natural gas this program would be provided specifically to companies that utilize natural gas in some capacity.

Actions that would be required to achieve recommendation:

- Amend KOZ legislation

Challenges to achieving recommendation:

- Legislation
- Budget

Additional supporting material:

- http://newpa.com/business-assistance/keystone-opportunity-zones/
- http://community.newpa.com/download/programs_and_funding/keystone_opportunity_zone/KOZ_Report_2008-2010.pdf

Draft

Natural Gas End Use Workgroup Recommendation #4

Expand Distribution System Improvement Charge (DSIC), Act 11 of 2012

Full recommendation:
On February 14, 2012, Governor Corbett signed Act 11 of 2012 amending Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes to allow jurisdictional water and wastewater utilities, natural gas distribution companies, city natural gas distribution operations, and electric distribution companies to petition the Commission for approval to implement a DSIC. The DSIC must be designed to provide for "the timely recovery of the reasonable and prudent costs incurred to repair, improve or replace eligible property in order to ensure and maintain adequate, efficient, safe, reliable and reasonable services." 66 Pa.C.S. § 1353 (a).

The Recommendation is to expand Act 11 of 2012 to include new projects to allow for timely development of infrastructure.

Relevant agencies:
PUC
DCED
DEP

Justification:
DSIC allows for the upgrade of old infrastructure ignoring the need for new infrastructure to be built out in many areas of the Commonwealth.

Actions that would be required to achieve recommendation:
- Amend Act 11

Challenges to achieving recommendation:
Amending Act 11 and gaining consensus among state agencies and affected parties.

Additional supporting material:
http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/system_improvement_charges_act_11_.aspx

Draft

Natural Gas End Use Workgroup Recommendation #5

Develop Municipal Guidelines for Natural Gas Distribution Lines

Full recommendation:
Encourage the development of recommended guidelines at the municipal level that impact the extension of natural gas distribution lines, including the areas of permitting fees, rights-of-way and repaving.

Guidelines should be developed by the PUC and the DCED.

Relevant agencies:
PUC
DCED
DEP
PennDOT

Justification:
Concern to keep these projects on-time and on-budget.

Actions that would be required to achieve recommendation:
Discussion between relevant state agencies, local governments and affected companies to discuss and develop guidelines.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #1

Require Leak Detection Survey Schedules

Full recommendation:
Create a Best Practice and subsequent regulations associated with conducting annual leak detection surveys on all pipelines existing or new.

Relevant agencies:
PUC

Justification:
Basis of the recommendation is the existing leak detection requirements under the PHMSA pipeline safety regulations that are applied to Class 2-4 gathering pipelines and are applied to all class locations for transmission pipelines. Applying these existing regulations and stricter Best Practices to:

- Class 1 gathering lines;
- Production pipelines outside of the well pad; and
- All other pipelines (natural gas and hazardous liquid) will enhance public safety and lower methane emissions.

Actions that would be required to achieve recommendation:
PHMSA would need to adopt new regulations for Class 1 Gathering/production pipelines, or Pennsylvania modifies its current statute to enact a Class 1 Gathering/Production pipeline Leak Detection requirement so that Class 1 Gathering/production pipelines become jurisdictional. A Best Practice would need to be established to encourage all pipelines to perform annual leak surveys.

Challenges to achieving recommendation:
PHMSA rulemakings can often last for years and the outcome is never guaranteed. If revising state law, the existing state statute precludes enactment of any regulations more stringent then PHMSA. Overturning this language may be controversial from an industry perspective. Performing annual leak surveys will increase Operations and Maintenance Costs to pipeline operators.

Additional supporting material:
Each operator should prepare and follow for each pipeline, a manual of written procedures for conducting operations, maintenance and integrity activities. Each operator should follow and keep records necessary to administer the procedures for the best practices. This manual should include procedures for the following, if applicable, to provide safety during maintenance and operations and integrity.

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1. Operating and Maintenance

It should include but is not limited to:

1. Patrolling

The frequency of patrolling mains should be determined by the severity of the conditions which could cause failure or leakage, and the consequent hazards to public safety. Pipelines in places or on structures where anticipated physical movement or external loading could cause failure or leakage should be patrolled at intervals not exceeding 4 1/2 months, but at least four times each calendar year.

2. Leak Survey

Leak surveys should be conducted annually on all pipelines (Distribution, Gathering, Transmission). Leak surveys should be conducted with a leak detection instrument. Records for leak surveys should be maintained for the life of the pipeline.

Ohio's pathway to pipeline safety is an example of the state route to achieving this recommendation .

http://www.puco.ohio.gov/puco/index.cfm/be-informed/consumer-topics/natural-gas-pipeline-safety-in-ohio/#sthash.fW0UAS4C.dpbs

Issues to address (such as cost, environmental impacts):

This recommendation will manifest additional costs on pipeline owners/operators.

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Pipeline Safety and Integrity Workgroup Recommendation #2

Require Leak Repair Schedules

Full recommendation:
Create a Best Practice and subsequent regulations to address leak repair scheduling of all pipeline leaks. The Best Practice would encourage all pipeline operators to repair all pipeline leaks as soon as possible, taking into consideration the risk to public/employee safety, environment, permitting (PennDOT/Environmental). The Best Practice would apply to all existing and new pipeline facilities. The new Commonwealth regulations would be dependent on PHMSA promulgating regulations associated with Production Pipelines and Class 1 Gathering Pipelines or the General Assembly modifying Act 127.

Relevant agencies:
PUC

Justification:
Pipeline leaks represent a failure of the pipeline system and contribute to hazardous conditions, public angst, and greenhouse emissions.

Actions that would be required to achieve recommendation:
PHMSA would need to adopt new regulations that provide for enforcement associated with Class 1 Gathering/Production Pipelines, or Pennsylvania modifies current statute to enact Class 1 Gathering/Production Pipeline Leak Detection requirement so that Class 1 Gathering and Production pipelines (not located on the well pad) become jurisdictional. Additionally, a Best Practice would need to be established that addresses a leak schedule for all pipelines. The leak schedule would require pipeline operators to repair leaks as soon as possible, taking into consideration the risk to public/employee safety, environment, permitting (PennDOT/Environmental). This will apply to all existing and new pipeline facilities.

Challenges to achieving recommendation:
PHMSA rulemakings can often last for years and the outcome is never guaranteed. If revising state law, the existing state statute precludes enactment of any regulations more stringent than PHMSA. Overturning this may be controversial from an industry perspective.

Additional supporting material:
Currently, pipeline operators follow the Gas Piping Technology Committee's (GPTC) best practices for leak classification. Generally, leak classification is described by three categories:

- Emergency leaks that are required to be fixed immediately;
- Leaks that are required to be repaired within 12 months and monitored every 6 months; and
- Leaks that are monitored but do not have to be fixed. The above recommendation provides for a Best Practice of fixing all leaks as practicable given permitting etc.

Issues to address (such as cost, environmental impacts):
This requirement will manifest additional costs on pipeline owners/operators.

Pipeline Safety and Integrity Workgroup Recommendation #3

Establish Publicly Available Pipeline Inspection Information

Full recommendation:
The establishment of an all Government (federal and state) pipeline inspection summary that will be made available to the public on a Commonwealth website which includes appropriate links to PHMSA website.

Relevant agencies:
PUC
DEP

Justification:
Transparency and keeping the general public informed.

Actions that would be required to achieve recommendation:
Formation of a dedicated webpage on the PUC or DEP website to disclose this information.

Challenges to achieving recommendation:
Internal procedures would need to be implemented at the PUC and/or DEP to maintain this website.

Additional supporting material:
PHMSA currently uploads its inspection results to its website.

Issues to address (such as cost, environmental impacts):
This will increase man-hours for the relevant agency issuing these reports and will require some initial costs for host website upgrading.

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Pipeline Safety and Integrity Workgroup Recommendation #4

Require a Cathodic Protection Program

Full recommendation:
Establish a Best Practice, until federal or state regulations are created, associated with the design and implementation of a Cathodic Protection program that would apply to all metallic pipelines starting at the electrical isolation point at the well head. This will include external and internal corrosion control if required.

Relevant agencies:
PUC

Justification:
Cathodic protection is a low cost and practical method to protect people, assets, and the environment from corrosion. This proposed Best Practice is consistent with PHMSA standards and should be applied to Class 1 Gathering pipelines and Production pipelines that are not located on the well pad.

Actions that would be required to achieve recommendation:
PHMSA would need to adopt new regulations for Class 1 Gathering and non-well pad Production pipelines, or Pennsylvania would need to modify its current statute to enact enforcement of Class 1 Gathering/Production pipeline regulations. Additionally, the Pipeline Infrastructure Task Force would have to establish a Best Practice to ensure that all metallic pipelines are cathodically protected.

Challenges to achieving recommendation:
PHMSA rulemakings can often last for years and the outcome is never guaranteed. If revising state law, the existing state statute precludes enactment of any regulations more stringent than PHMSA. Overturning this may be controversial from an industry perspective.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
This requirement will manifest additional costs on pipeline owners/operators.

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Pipeline Safety and Integrity Workgroup Recommendation #5

Require An Integrity Management Program (IMP) for Gathering Pipelines

Full recommendation:
The establishment of a Best Practice, until appropriate state and federal regulations are implemented, associated with the implementation of an IMP for all existing and new gathering/production pipelines in all Class locations. Plan should include:

- ILI assessments, this includes a post construction baseline, and a re-assessment interval of 10 years. Alternative assessments, such as hydrostatic testing or direct assessment can be used if the pipeline is not capable of accommodating ILI tools.
- Conduct a Risk Analysis Annually. Minimum data required; corrosion, seam type, pipe information, leak history, third party construction, operating conditions, outside forces, etc.
- Implement mitigation measures based on risk.

Relevant agencies:
PUC

Justification:
An Integrity Management Program is a risk assessment strategy that requires pipeline operators to determine their pipeline operating risks and subsequently plan to mitigate these risks. This program would identify areas where anomalies could pose a risk to people and the environment and allow timely remediation to ensure integrity of the steel pipe. In addition, this inspection would provide baseline inspection information on pipe deformation and internal and external corrosion. Inline inspection data would provide much needed data to conduct more effective risk analysis for future integrity decisions

Actions that would be required to achieve recommendation:
A Best Practice would need to be established to encourage non jurisdictional gathering/production pipelines to participate in an IMP. Also, PHMSA would need to adopt new regulations for Gathering and non-well pad Production pipelines, or Pennsylvania modifies current statute to enact Gathering and non-well Production pipeline regulations.

Challenges to achieving recommendation:
PHMSA rulemakings can often last for years and the outcome is never guaranteed. If revising state law, the existing state statute precludes enactment of any regulations more stringent than PHMSA. Overturning this may be controversial from an industry perspective.

Additional supporting material:
Currently, all PHMSA jurisdictional transmission, and distribution pipelines are required to implement an IMP. These risk base programs provide for risk mitigation and therefore reduce pipeline failures.

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Issues to address (such as cost, environmental impacts):
This requirement will manifest additional costs on pipeline owners/operators.

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Pipeline Safety and Integrity Workgroup Recommendation #6

Authorize PA Public Utility Commission (PUC) Regulation of Non-Jurisdictional Pipelines

Full recommendation:
If recommendations from the PITF provide for addition safety regulation over non-jurisdictional pipeline operators, then the Task Force should also recommend to the Pennsylvania Legislature that authorization is needed for the PUC to implement regulations, increase PUC compliment, and assess all non-public utility pipelines to support the expanded responsibilities.

Relevant agencies:
PUC
Governor's Office
General Assembly

Justification:
This authority will be required to verify programs and monitor pipeline safety information to review effectiveness and enforcement of such programs.

Actions that would be required to achieve recommendation:
Legislative and Governor authorization.

Challenges to achieving recommendation:
The existing state statute precludes enactment of any regulations more stringent than PHMSA. Overturning this may be controversial from an industry perspective.

Additional supporting material:
If the PUC were to be given the legislative authority to enforce pipeline safety regulations associated with recommendations advanced by the PITF, such as requiring Class 1 Gathering to be jurisdictional, mapping, siting, etc., the General Assembly and the Governor would have to ensure that the PUC has the staffing resources and the financial resources and the legal authority to implement such programs.

Ohio's pathway to pipeline safety is an example of the state route to achieving this recommendation
http://www.puco.ohio.gov/puco/index.cfm/be-informed/consumer-topics/natural-gas-pipeline-safety-in-ohio/#sthash.fW0UAS4C.dpbs

Issues to address (such as cost, environmental impacts):
This requirement will manifest additional costs for additional personnel for compliance activities.

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Pipeline Safety and Integrity Workgroup Recommendation #7

Require Best Practices and Standards for Production Lines Located Beyond the Well Pad and Gas Gathering Lines in Class 1 Locations

Full Recommandation:
In recognition of anticipated changes to the federal safety standards for gas gathering lines, the Pipeline Safety and Integrity Workgroup recommends that:

1) The Governor of the Commonwealth of Pennsylvania (Commonwealth) should send a letter to the Secretary of the USDOT and Administrator of the PHMSA requesting that new safety standards for gas gathering lines be proposed at the earliest possible date, but by no later than the publication date of the PITF's final report, and that those rules be finalized at the earliest possible date, but by no later than December 31, 2016, so that the citizens of the Commonwealth can be assured that these lines are safely designed, constructed, tested, operated, and maintained, and that operators are provided with certainty as to the regulations that will apply to existing and new gas gathering lines.

2) Until PHMSA issues new federal safety standards, as a best practice operators of gas production lines located beyond the well pad and gas gathering lines in Class 1 locations (*see* 49 C.F.R. §§ 192.5, 192.8, 192.9) should follow the regulations in 49 C.F.R. Part 192 for damage prevention (49 C.F.R. § 192.614), public awareness (49 C.F.R. § 192.615), and line markers (49 C.F.R. § 192.707), and participate in the Pennsylvania One Call Program (73 P. S. § 176 *et seq.*).

3) If PHMSA does not take appropriate action to establish new federal safety standards for production and gas gathering lines, the General Assembly should consider amending the provisions in the Gas and Hazardous Liquids Pipeline Act ("Act 127"), Act of Dec. 22, 2011, P.L. 586, No. 127, to provide the PUC) with the authority to establish safety standards for gas production lines located beyond the well pad and gas gathering lines in Class 1 locations. In determining whether PHMSA has taken appropriate action, the General Assembly should consider:

    (a) Whether PHMSA proposes or finalizes new federal safety standards for gas gathering lines within the timeframes specified in Recommendation 1.

    (b) Whether PHMSA's regulations require operators of gas production lines located beyond the well pad to protect metallic lines from corrosion, implement damage prevention and public awareness programs, install line markers, and participate in the Pennsylvania One Call Program.

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(c) Whether PHMSA's regulations require operators of gas gathering lines in Class 1 locations to:

(i) Comply with the requirements for other gas gathering lines, including, but not limited to, the following: standards for the construction of new, replaced, or relocated lines, corrosion control requirements for metallic lines, and provisions for establishing maximum allowable operating pressure, conducting operation and maintenance activities, performing leak surveys, implementing programs for damage prevention and public education and awareness, and installing pipeline markers.

(ii) Provide PUC with prior notice of major construction, reconstruction, or maintenance activities (*see* 52 *Pa. Code* § 59.38) and submit incident, safety-related condition, and annual reports.

In deciding whether to amend Act 127, the General Assembly should consider asking the Independent Fiscal Office to prepare a report that compares the public safety benefits with the costs and other economic impacts of authorizing PUC to establish safety standards for operators of gas production lines located beyond the well pad and gas gathering lines in Class 1 locations. The General Assembly should also consider whether PUC needs additional authority to conduct pipeline inspections or fund the cost of administering the gas pipeline safety program under the terms of its certification with PHMSA if Act 127 is amended.

Relevant Agencies:
Governor
General Assembly
PUC
Pennsylvania Independent Fiscal Office
USDOT
PHMSA

Justification:
PHMSA is responsible for prescribing and enforcing minimum federal safety standards for natural gas pipelines. PHMSA's federal standards apply to most pipelines in the United States, and they are generally the only safety requirements that apply to interstate pipeline facilities, with the exception of qualified one-call damage prevention laws. The states are allowed to assume responsibility for regulating the safety of intrastate pipeline facilities by submitting an annual certification to USDOT. With the exception of Alaska and Hawaii, all of the states have an entity that is certified to regulate intrastate gas pipelines. PUC is the state authority that regulates intrastate gas pipeline facilities in Pennsylvania.

Pipelines carry nearly all of the natural gas transported in the United States and are of special interest to the citizens of the Commonwealth as a source of critical energy infrastructure and economic development. When compared to other modes of transportation, pipelines are

recognized as the safest means of transporting natural gas. Notwithstanding the pipeline industry's safety record, concerns with the safety of gas gathering pipelines have been raised in recent years:

- In a July 2011 report, the Governor's Marcellus Shale Advisory Commission recommended that PUC be given the authority to regulate the safety of gas gathering lines, and that such authority should include a mechanism for establishing standards for the design, construction, and installation of gas gathering lines in Class 1 locations.

- In August 2011, PHMSA published an advance notice of proposed rulemaking (ANPRM) asking the public to comment on whether the agency should change its regulations for gas gathering lines. PHMSA explained in the ANRPM that the agency established its current regulations in March 2006, and that those regulations require gas pipeline operators to use the provisions in the American Petroleum Institute (API) Recommended Practice 80, Guidelines for the Definition of Onshore Gas Gathering Lines (1st ed., April 2000) (API RP 80) to determine if a pipeline is an onshore gas gathering line. PHMSA further explained that if a pipeline meets the definition of an onshore gas gathering line, an operator must then determine if the line qualifies as one of the two types of regulated onshore gas gathering line under the federal rules. Citing recent developments, particularly the emergence of large-diameter, high-pressure gathering lines in the nation's shale plays, the limited applicability of the federal rules, and the difficulties of enforcing the provisions in API RP 80, PHMSA acknowledged that its regulations for gas gathering lines might no longer be appropriate.

- In a March 2012 report, Federal Government Accounting Office (GAO) recommended that PHMSA obtain data on federally-unregulated gas gathering lines and create a clearinghouse for sharing information on pipeline safety practices. In an August 2014 report, GAO further recommended that PHMSA "move forward with a Notice of Proposed Rulemaking to address gathering pipeline safety that addresses the risk of the larger-diameter, higher-pressure gathering pipelines, including subjecting such pipelines to emergency response planning requirements that currently do not apply."

- In a March 2015 letter to Congress that accompanied a report on the existing federal and state regulations for gathering lines, the Secretary of USDOT confirmed that PHMSA is considering whether to propose new regulations for gas gathering lines. The Secretary also indicated that PHMSA would analyze the economic impact, technical practicability, and other challenges of applying new regulations to gathering lines that are not currently subject to the federal rules when compared to public safety benefits, and that the agency would use a risk-based assessment in determining whether to modify or revoke any existing exemptions for unregulated gas gathering lines.

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- In April 2015, PHMSA sent a notice of proposed rulemaking (NPRM) that included provisions for the regulation of gas gathering lines to the Office of Management and Budget (OMB) for review. Although not yet released, USDOT projects that the NPRM will complete the OMB process and be published in the *Federal Register* in the coming months.

With due consideration for the safety record of the natural gas pipeline industry, the Pipeline Safety Workgroup has developed three recommendations to present to the Task Force for its consideration to address safety of gas gathering lines.

- The first recommendation is for the Governor to send a letter to the USDOT Secretary and PHMSA Administrator requesting that new federal safety standards for gas gathering lines be proposed at the earliest possible date, but by no later than the publication date of the Task Force's final report, and that those regulations be finalized by the earliest possible date, but by no later than December 31, 2016. The Governor should ask USDOT and PHMSA to act within these timeframes, so that the citizens of the Commonwealth can be assured that gas gathering lines are being safely designed, constructed, tested, operated, and maintained, and that operators have certainty as to the regulations that will apply to existing and new gas gathering lines. The PSIW is particularly concerned with the protracted nature of the federal rulemaking process, which has been underway for more than five years.

- The second recommendation is to propose that operators of gas production lines located beyond the well pad and gas gathering lines in Class 1 locations to implement certain best practices until PHMSA completes the federal rulemaking process. Operators of these lines, which are currently not regulated under the federal rules, should implement programs for damage prevention (49 C.F.R. § 192.614) and public awareness (49 C.F.R. § 192.615), install line markers at appropriate locations (49 C.F.R. § 192.707), and participate in the Pennsylvania One Call Program (73 P. S. § 176 et seq.). Many operators are already following these best practices, and they represent a generally-accepted approach for ensuring the safety of these lines on an interim basis.

- The third recommendation is for the General Assembly to consider amending Act 127 to provide PAPUC with additional regulatory authority if PHMSA does not take appropriate action to establish new federal safety standards for gas gathering and production lines. The PSIW has identified certain factors that the General Assembly should consider in making that determination, *i.e.*, whether PHMSA takes timely action to propose or finalize its new federal safety standards for gas gathering lines; whether PHMSA's regulations require operators of production lines located beyond the well pad to comply with certain minimum safety standards; and whether PHMSA's regulations require operators of gas gathering lines in Class 1 locations to comply with the requirements that apply to other gas gathering lines and the reporting requirements that apply to other pipelines regulated by PUC. In deciding whether to amend Act 127, the PSIW is

also recommending that the General Assembly consider asking the Independent Fiscal Office to prepare report that compares the public safety benefits with the costs and other economic impacts of providing PUC with the authority to regulate production lines located beyond the well pad and gas gathering lines in Class 1 locations. Finally, if Act 127 is amended, the PSIW is recommending that the General Assembly consider whether PUC needs additional authority to conduct pipeline inspections or fund the cost of administering the gas pipeline safety program under the terms of its certification with PHMSA.

Actions that would be required to achieve recommendation:

- Letter from the Governor to Secretary of USDOT and Administrator of PHMSA.

- Until PHMSA issues new federal standards for gas gathering lines, operators of gas production that are located beyond the well pad and gas gathering lines in Class 1 locations should comply with certain best practices.

- If PHMSA does not take appropriate action to establish new federal safety standards for gas gathering lines, the General Assembly should consider amending Act 127 to provide PUC with additional authority to regulate gas production lines located beyond the well pad and gas gathering lines in Class 1 locations.

- In deciding whether to amend Act 127, the General Assembly should consider whether to ask the Independent Fiscal Office to prepare a report that compares the public safety benefits with the costs and other economic impacts of such an action, and whether PUC needs additional authority to conduct pipeline inspections or fund the cost of administering the gas pipeline safety program under the terms of its certification with PHMSA.

Challenges to achieving recommendation:

- Protracted nature of the federal rulemaking process.

- Absence of sufficient safety-related data for gas production lines located beyond the well pad and gas gathering lines in Class 1 locations.

- Inability of PHMSA or PUC to ensure compliance with best practices.

- Potential limitations on PUC's authority to regulate gas production lines located beyond the well pad and gas gathering lines in Class 1 locations under Act 127.

Additional supporting material:

Pennsylvania Marcellus Shale Advisory Commission Report, July 2011.
Pipeline Safety: Safety of Gas Transmission Pipelines, 76 Fed. Reg. 53,086 (Aug. 25, 2011)

U.S. GOV'T ACCOUNTABILITY OFFICE, GAO/RCED-00-128, PIPELINE SAFETY: THE OFFICE OF PIPELINE SAFETY IS CHANGING HOW IT OVERSEES THE PIPELINE INDUSTRY (May 2000)

U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-388, PIPELINE SAFETY: Collecting Data and Sharing Information on Federally Unregulated Gathering Pipelines Could Help Enhance Safety (2012)

U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-168, BETTER DATA AND GUIDANCE NEEDED TO IMPROVE PIPELINE OPERATOR INCIDENT RESPONSE 8 (Jan. 2013)

U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-667 - OIL AND GAS TRANSPORTATION; Department of Transportation Is Taking Actions to Address Rail Safety, but Additional Actions Are Needed to Improve Pipeline Safety (2014).

PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMIN., U.S. DEP'T OF TRANSP., STUDY ON THE IMPACT OF EXCAVATION DAMAGE ON PIPELINE SAFETY (2014)
DIANA FURCHTGOTT-ROTH & KENNETH P. GREEN, FRASER INSTITUTE, INTERMODAL SAFETY IN THE TRANSPORT OF OIL (Oct. 2013)

Issues to address (such as cost, environmental impacts):

- Potential costs for pipeline operators of complying with new safety standards established by PHMSA or PUC for gas production lines located beyond the well pad and gas gathering lines in Class 1 locations.
- Ensuring that PUC has sufficient funding to administer the gas pipeline safety program.

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Pipeline Safety and Integrity Workgroup Recommendation #8

Establish Mapping/GIS for Emergency Response

Full recommendation:
The establishment of a Best Practice for Emergency response that pertains to:

(1) Mapping pipelines - with a GIS Data Model and format compatible for data sharing; (2) Best Practices will specify a minimum horizontal accuracy requirement for GIS data of +/- 6.67 ft. for new line construction. For existing infrastructure, while it is highly desirable that it be mapped to that horizontal accuracy, it is recommended that existing infrastructure meet the 2014 PHMSA NPMS accuracy standards as a minimum. Any survey updates to existing infrastructure should meet the +/- 6.67 ft. horizontal accuracy standards.

Relevant agencies:
PUC
PA1Call
General Assembly
PEMA
County EMA
Public Safety Answering Point (PSAPs)
PA Geospatial Coordinating Board

Justification:

<u>Mapping/GIS</u>

1. Across the Commonwealth of Pennsylvania there is a variety of pipeline GIS data in various formats. Some Pennsylvania counties have no requirements for GIS Data collection or formatting. Some counties access the NPMS hosted on the PHMSA. In some cases there is an inability to readily share the data that is being collected due to differences in data schema and format. The PA1Call System (PA1Call) provides information sharing for all underground facilities and is associated with Damage Prevention in Pennsylvania. PA1Call sponsors a member mapping service that allows the members to map its underground facilities in the PA1Call data base. If PA1Call could provide real time mapping services and/or the option to download the most recent data every 24hrs. to emergency responders at no cost, PA1Call would be a natural fit as the Commonwealth's mapping repository for all pipeline data.

    a. Further, it is imperative that this information interface with counties and 911 centers (PSAPs) in particular. In case of emergency, telecommunicators need this information at their fingertips, with ease of access in one location. Emergency response requires that emphasis be placed on real time data; PSAPs will need to have the option to download data directly to their systems

2. GIS data formats tend to evolve as software evolves; and although there is a de facto GIS software standard in the Commonwealth, it is also recognized that as software evolves

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other options may become the new standard for a GIS platform. Data exchange formats should be to open standards.

a. All mapping of pipelines and related facilities should be as a minimum in a format compatible with the Open Geospatial Consortium (OGC) data sharing standards.

3.

a. The PAMAP project as managed by DCNR had specific horizontal accuracy requirements; the PAMAP ortho-images have a horizontal scale accuracy of 1:2400 (http://www.dcnr.state.pa.us/topogeo/pamap/imagery/index.htm) ; the short version of which translates to a horizontal accuracy of +/- 6.67 ft. That is the language which is included in the Act 9 Rules and Regulation governing the addressing of unconventional wells'; it was argued during the finalizing of the rules and regulations that since PAMAP essentially created a base map with specific accuracy across the Commonwealth, that accuracy requirement should be the minimum accuracy in any document requiring mapping in the Commonwealth. http://www.pabulletin.com/secure/data/vol43/43-4/132.html

PA Code Chapter 25, Subchapter C – Environmental Protection Performance Standards, §78.55(e)(3)(ii).

b. The case was made and accepted in the Act 9 Rules and Regulations that GPS coordinates expressed as decimal degrees to 6 decimal points is the only acceptable GPS coordinate for mapping purposes. This makes the format of GPS coordinates standard across the Commonwealth and eliminates much potential for error when multiple formats of coordinates are used.

c. In 2014 PHMSA NPMS changed the positional accuracy standard to +/- 50 feet for most pipelines. Most pipelines, all natural gas gathering and Class 1 Area transmission pipelines do not fall under this classification, but rather, are mapped to a positional accuracy of +/- 100 feet. This new 100 foot standard is meant to accommodate lines in very rural areas. However, Pennsylvania's unconventional natural gas development is not in isolated rural areas, but rather areas that are rural communities and neighborhoods. With an eye to the future, and the immense pipeline network that is necessary to transport unconventional shale gas, the Commonwealth needs a more accurate standard. For example, +/- 50 feet can be the difference of one side or the other of a road; or a stream; or other boundaries in rural areas. Thus, it is imperative that mapping sufficiently represent the actual pipeline location to avoid errors in jurisdictional emergency response.

Actions that would be required to achieve recommendation:

- An agency such as PA1Call would need to be designated as the repository agency. Note: In regards to PA1Call, their board would need to agree to accept the responsibility.
- If PA1Call is agreeable to being designated as the repository agency, the General Assembly will need to provide authorization.
- GIS format requirement should be referred to the PA Geospatial Coordination Board (Act 178)

Draft

Challenges to achieving recommendation:

Additional supporting material:

1. Mapping/GIS

    a. PA1Call or another designated Commonwealth Agency should serve as the repository and distributor of as- built pipeline mapping. In lieu of a centralized Commonwealth repository; every operator of pipelines in PA will need to provide as built GIS data as soon as reasonably possible to the both the Commonwealth and the counties in which their pipelines are located.
        i. Real Time – It is imperative that 911 Centers throughout the Commonwealth be provided with near real time data.
        ii. The central repository shall provide daily downloads to the county 911 centers (PSAPs).
        iii. Timely information shall be available for county and municipal planning purposes.

    b. GIS/GPS – data as provided must include GPS coordinates expressed in decimal degrees to 6 decimal points. In order to standardize GIS data, all GIS data for new construction must meet a minimum horizontal accuracy of +/- 6.67 feet.

    c. All mapping of pipelines and related facilities should be as a minimum in a format compatible with the OGC data sharing standards. As the GIS data model and formats evolve, all agencies should be prepared to remain compatible with the current standards.

    d. Additional data concerning pipeline features may be included in the GIS data layers with the understanding that it is restricted to Public Safety and related government entities and not available as a public data.

- http://www.pabulletin.com/secure/data/vol43/43-4/132.html
  PA Code Chapter 25, Subchapter C – Environmental Protection Performance Standards, §78.55(e)(3)(ii).

- PAMAP
  http://www.dcnr.state.pa.us/topogeo/pamap/index.aspx

Issues to address (such as cost, environmental impacts):

- If PA1Call or another agency is designated, funding will need to be secured.
- If a centralized agency is not designated, that will require the operators to provide the information to both the Commonwealth and each county in which they are operating.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #9

Designate PA1Call As Enforcement Agency for Underground Utility Line Protection Law

Full recommendation:
The Pennsylvania PUC be designated as the enforcement agency for the Underground Utility Line Protection Law (UULP) (PA Act 287) via a legislative change to UULP. The PUC is responsible for the regulation of all Public Utilities who are all members of the PA1Call System. The PUC is uniquely structured to be UULP enforcement agency since it is staffed with Administrative Law Judges, lawyers, and engineers needed to investigate and prosecute violations to the UULP. Additionally, the PUC's Gas Safety Division has a contractual arrangement with the USDOT PHMSA to enforce PHMSA's pipeline safety regulations as they pertain to Damage Prevention of Natural Gas and Hazardous Liquid Pipelines. Increased enforcement of the UULP will reduce the underground facility damages which are the highest risk to pipeline failures.

Relevant agencies:
PUC
PA1Call
General Assembly
Department of Labor and Industry

Justification:
Natural gas pipeline failures resulting from damaged facilities are the number one safety issue for all pipelines in the Commonwealth and for all pipelines in the nation. Approximately 2,000 underground gas pipelines are damaged per year as a result of a violation of the UULP. The Commonwealth averages two reportable incidents (explosions) per year caused by damaged pipelines. Increased enforcement of the UULP will reduce the number of underground damages and will reduce the risk of reportable incidents to the Commonwealth.

Actions that would be required to achieve recommendation:
Legislative changes to the UULP (Act 287)

Challenges to achieving recommendation:
Transferring the enforcement authority from Labor and Industry to the PUC.

Issues to address (such as cost, environmental impacts):
PUC would require legislative authority to assess the PA1Call members for enforcement.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #10

Enhance Public Awareness via Mapping/GIS

Full recommendation:
The establishment of a Best Practice associated with a Public Awareness Program in regards to public accessible mapping/GIS. The Awareness Program should focus on increased transparency. The gathering fields should have the transparency of public awareness, public input and public involvement that is commonly seen among FERC transmission projects in all class locations. The purpose of this recommendation is to increase the public's knowledge and awareness regarding gathering line operator's practices through the use of mapping pipeline location. This recommendation recognizes that there must be a balance between providing information to the public and protecting critical infrastructure.

Mapping/GIS

a. It is recommended that a Public Pipeline Portal be developed. This portal should provide access to all pipeline information available through the applicable Pennsylvania's Right to Know Law and the Public Utility Confidential Security Information Disclosure Protection Act. The portal should include links to the operator's appropriate webpage and include links to each county websites where they exist and if the county deems it appropriate.

b. The Pennsylvania Geospatial Coordinating Board should make a recommendation to Office of Administration and the Legislature on the ideal agency to host the Public Pipeline Portal or to recommend other options in regards to hosting the Portal. Act 178 provides for the following:

Section 432.1. State Geospatial Coordinating Board.--(a) There is established a State Geospatial Coordinating Board within the Governor's Office of Administration. The board is established to provide advice and recommendations to the Governor and the citizens of this Commonwealth on geospatial issues and provide uniform data standards, coordination and efficiency in geospatial policy and technology issues among Federal, State and local government agencies, academic institutions and the private sector.

In as much as the State Geospatial Coordinating Board is charged with the following:

(3) Define and prioritize strategic opportunities where maps and spatial analysis activities could enhance the business of government and provide more cost-effective services to citizens. This paragraph may include recommendations of specific geospatial technology investments in this Commonwealth.

It is appropriate that this Coordinating Board be engaged in the process of establishing a Public Pipeline Portal.

Draft

A model template for this portal may be found by referring to the the Pennsylvania Pipeline Mapping System (PPMS) similar to the PHMSA National Pipeline Mapping System and Chester County created PNP/PIC which adopt protocols for mapping capabilities that promote and achieve specific, measurable, attainable, risk informed, and timely information gathering, maintenance and distribution of pipeline infrastructure specific mapping in order to ensure vertical team integration of decision makers and promote statewide access to pipeline infrastructure location that promotes pipeline safety.

c. If PA1Call is designated as the repository agency for pipeline mapping, a daily download of updates should be provided to the Public Pipeline Portal (PPP). The PPP will be made available on the various state agencies websites which have involvement with pipelines across the Commonwealth.

Should the Commonwealth be unable to fully develop and sufficiently maintain the PPP, then mapping becomes the responsibility of each gathering line operator within the Commonwealth. The following is an example of such a web portal: http://www.marathonpipeline.com/Where_We_Operate/

Relevant Agencies:
PUC
PA1Call
Pipeline Operators
County Commissioners Association of Pennsylvania (CCAP)
Office of Administration
PA Geospatial Coordinating Board

Justification:
The public's need for basic information about basic pipeline data is a matter of public interest and safety. When the public is more aware of pipelines around them, they are more apt to avoid encroachment and activities that may create certain unsafe situations. This information also satisfies disclosure for those purchasing property to have awareness there is a pipeline in the vicinity and by accessing the county link or ordinance may discover what local restrictions may be placed near the pipeline of interest. This assists in avoiding any confusion regarding future development.

Actions that would be required to achieve recommendation:
A Commonwealth Agency would need to develop and maintain the PPP. This may require legislative or executive action to accomplish the task. Alternatively, Pipeline Operators would need to create their own public viewer available on their website if a Commonwealth Portal is not established.

Challenges to achieving recommendation:
- There may be problems creating the interworking between PA1Call and the hosting agency to develop the protocol.
- The hosting agency may need legislative guidance regarding adequate public disclosure.

Draft

- With gathering lines frequently changing ownership, the Pipeline Operators public viewers may have issues during mergers and acquisitions.

Additional supporting material:
Act 178
http://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2014&sessInd=0&act=178

Enterprise Products Pipeline Viewer Presentation, 2012 Pipeline Safety Trust Annual Conference

2013 GAO Pipeline Permitting: Interstate and Intrastate Natural Gas Permitting Processes Include Multiple Steps and Time Frames Vary

Chester County Pipeline Notification Protocol and Pipeline Information Center as adapted from PHMSA's PIPA.

Issues to address (such as cost, environmental impacts):

- Clarification of Pennsylvania's Right to Know Law and the Public Utility Confidential Security Information Disclosure Protection Act in regards to pipelines as critical infrastructure.
- Cost: To meet this recommendation, either the hosting agency of PPP or the industry is going to require designated funds. An option is for all Pipeline Operators to participate and provide a stipend relevant to their pipeline miles.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #11

Create A Public Education Program on Gathering Systems

Full recommendation:
The establishment of a Best Practice associated with a Public Education Program. The Education Program should focus on increased transparency within the gathering fields. The gathering fields lack the transparency of public awareness, public input and public involvement that is commonly seen among FERC transmission projects in all class locations. The purpose of this recommendation is to increase the public's knowledge regarding gathering line operator's transparency in the areas of maps, education and pipeline location by guiding industry with Best Practices. This recommendation attempts to find the balance between too much transparency and information and insufficient transparency and information.

Education
As a Best Practice, the Pipeline Operator should embark on a Community Outreach program that should occur prior to land agents meeting with landowners regarding a proposed gathering system or segment. The operator should provide a community open house similar to what is provided during the FERC pre-filing on a regulated transmission pipeline. The open house must be located within the municipality/municipalities and counties of the proposed gathering system operation.

As a Best Practice Best Practice, information should be provided at community open houses and should include but are not limited to the following:

- Map of proposed routes, including access roads and valve locations;
- The operator provides at the community open house particulars regarding the 'perfect route' and 'alternative routes';
- Information along the route as to the proposed pipeline's name, products transported, diameter and operating pressure;
- Information of unusual occurrences along the gathering line and who to call;
- Information of nearest office and control room;
- Information on integrity management, including prescribed response time;
- Information regarding emergency response during a gathering line failure; Information concerning construction, pipeline safety, right of way (ROW) maintenance, invasive species control;
- Information regarding PA1Call and damage prevention;
- Operator's responsibility regarding ROW issues;
- Landowner's responsibility regarding ROW issues.
- Consultation Zones- If there is either a county or local ordinance; a display indicating when to consult with the operator concerning development nears the gathering lines. If there is no county or local ordinance; the operator provides a consultation zone policy based on ROW width, pipeline diameter, pressure and potential impact radius; and
- Construction and operational time table.

Draft

Relevant agencies:
Townships
Emergency Response
Fire Department
PA1Call

Justification:
In the pipeline gathering fields, it is not uncommon for a pipeline to be routed along property boundaries with no formal notice, contact or other communication opportunities for landowners. Sometimes landowners are not fully aware that if they were to allow a gathering line on their larger property, it would keep pipeline infrastructure away from small properties where the impact is greater. Understanding of this issue alone is of value to gathering Pipeline Operators attempting to route pipelines away from rural populations. Some local governments and counties, such as Wyoming County, PA have ordinances that dictate setbacks and restrict land-use on future subdivisions along pipeline ROWs. The ordinance is restrictive to the landowner, even if the ROW is not on their property. With provisions of development based on edge of ROWs and ROWs commonly following property boundaries, depending on the type of development and associated setback off the edge of the ROW, potentially a property owner could have a property that their plans for future land use will not be in compliance with the county or local ordinance. Public education focusing on development and living along pipelines provide a good alternative to avoiding encroachments and problems.

During the FERC pre-filings, Pipeline Operators host open house with lots of staff and information and are well attended by the interested public. Those living along gathering line routes have the same interest and concerns but if they are not the hosting landowner, they have very little or no opportunity to interact with the gathering line operator.

By providing the "perfect route" proposal along with alternatives, communities may see the benefit of how the operator is striving to route the gathering line away from rural populations, schools and hospitals. Sharing this information with the community, while the Pipeline Operators generally dislike doing this due to ongoing negotiations, in some cases will actually help them succeed with their preferred routing. Everyone wants safe pipelines with the least disruptive routes. Sharing information may help make that a reality.

People want to know about the pipeline near their home. They want to know how near they may be to the potential impact radius. They want to know who to call, what to look for, how the pipeline is monitored for safety and the location of the operator's control room. They want to feel safe around pipelines, so by sharing emergency response information and even inviting the fire department to attend and talk with residents about their training and preparedness will go a long way in assisting people to understand pipelines and their associated risks.

Third party damage is a real concern along rural gathering lines. It is not unusual for rural families to own backhoes, tractors, quads and other equipment that have the potential to come into contact with an active gathering line. Learning about damage prevention and the role of PA1Call is of great benefit.

Not only landowners, but community members as well are concerned about the ROWs commonly seen in their areas. They are interested in knowing who and how they are maintained and what operator's and landowner's responsibilities may be.

An open house is a good opportunity to share with the public any existing ordinances that pertain to consultation zones along pipelines. This is a good opportunity to invite the county or municipal planning department to be a participant in the open house. It is a good way to get people thinking about planning along pipelines. In the absence of an ordinance pertaining to consultation zones, a Best Practice for an operator is to establish an in house consultation zone policy and actively engage those property owners whose property falls within the zone. Education is a potential pathway to avoiding pipeline encroachments.

The 2010 Pipelines and Informed Planning Alliance (PIPA) Report, Appendix F notes that open houses for Transmission Pipeline Operators are beneficial as the assist the public in understanding risks. For an intensive gathering line network, the opportunities and benefits are replicated.

Lastly, people are very interested in the construction time table. Those living along Horizontal Directional Drilling (HDD) activity may have questions about noise and the operation itself. They want to know the hours the activity will be occurring. They want to know who to call in case they experience impacts during construction.

Community open houses for an entire gathering system or along new segments provide opportunities for awareness that will put more eyes on the gathering lines noticing symptoms of concern and better understanding and awareness of the importance of calling 811 before digging. Rural residents have lacked this type of outreach and more than a few still lacks understanding that gathering lines have low frequency, high intensity events where gathering lines may fail, may explode and may impact property and lives.

Actions that would be required to achieve recommendation:
Pipeline Operators would have to provide an open house in the appropriate hosting municipalities.

Pipeline Operators would need to include the jurisdictional fire department and the jurisdictional planning department.

Challenges to achieving recommendation:
This is a radical change to what has been commonly done in the gathering fields. Pipeline Operators may be reluctant to change. Not many gathering Pipeline Operators are involved in the PITF process, so they may feel they don’t have ownership in the process.

Additional supporting material:

- Wyoming County SALDO – Pipelines, adopted June, 2011
- 2010 Pipelines and Informed Planning Alliance (PIPA) Report, Appendix F

Draft

Issues to address (such as cost, environmental impacts)
The outreach costs are borne by the pipeline operator.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #12

Enhance Public Awareness of Pipeline Location

Full recommendation:
The establishment of a Best Practice associated with a Public Awareness regarding Pipeline Location. The Public Awareness program should focus on increased transparency within the gathering fields. The gathering fields lack the transparency of public awareness, public input and public involvement that is commonly seen associated with pipeline sitings with FERC transmission projects in all class locations. The purpose of this recommendation is to increase the public's knowledge regarding gathering line operator's transparency in the areas of maps, education and pipeline location by guiding industry with Best Practices.

Pipeline Location
A Best Practice should be established to site gathering lines with understanding of the community. The Pipeline Operator is fully aware of and provides information at the public input meetings regarding any local rules they need to follow. As much as possible, the Pipeline Operator should avoid areas where a gathering line failure could present unique challenges to emergency response and the public. An example of such areas that would be excluded from gathering line sitings would include placing a school or hospital within the potential impact radius of an non-odorized natural gas gathering line.

Pipeline Operators who reach out to local watershed associations meet the Best Practice concerning local environmental and conservation issues that may be of concern to the local community. Example of Best Practices would be:

If requested, Pipeline Operators should meet directly with local watershed groups where information is exchanged such as unstable features within the watershed that may present problems in gathering line crossings.

Pipeline Operators should provide the watershed association with information regarding environmental and safety practices followed while operating within locations of concern.

Pipeline Operators should provide information concerning special features including but not limited to; threatened, endangered and candidate species, exceptional and high quality waters along with mitigations and offsite mitigation locations offsetting within and outside of the watershed.

Pipeline Operators should provide details concerning the mitigation locations and measures to be taken.

As a Best Practice, Pipeline Operators should odorize gathering lines that places the public schools, hospitals or senior housing either in the potential impact radius or when the edge of the ROW is within 1,000 feet of the school or hospital.

Draft

As a Best Practice, a Pipeline Operator should provide a detailed, uniquely specific Incident Action Plan for gathering lines routed near public schools, hospitals or senior citizen housing when the potential impact radius is within 2,500 feet of the school or hospital. The Incident Action Plan should be filed with the local fire department and county Emergency Management Agency (EMA).

As a Best Practice, the local fire department should be involved with the pipeline operator in the process of preparing the detailed, uniquely specific Incident Action Plan.

Relevant agencies:
Pipeline Operators
Municipalities
Watershed associations
Local fire department
County EMA

Justification:
Pipeline Operators need to be aware of unique situations with pipeline locations in the communities hosting them. Unregulated gathering lines have very little oversight and virtually no opportunities for public involvement. The operator needs better understanding of the communities they operate within in order to be a good neighbor with a tool box of Best Practices.

One Best Practice previous mentioned is the use of open houses. Open houses provide unique situations where the public is able to gain a variety of information; not just from the operator, but also the appropriate planning department and the community's first responders. These types of open houses may alert the operator to unique challenges that concern the community, for example, siting a gathering line on school property where the emergency exits send children right out to the gathering line right of way. Additionally, many gathering lines lack odorization, so a very important signal that something may be amiss with the pipeline is missing from protecting children in a most vulnerable situation in the case of a potential pipeline failure.

Pipeline Operators may realize great assistance and benefit by reaching out to the community's active watershed association. As a prime example of this, the Mehoopany Creek Watershed Association (MCWA) repeatedly made efforts to meet with the gathering operator in process of permitting their first crossing in a very unstable glacial till watershed. The MCWA had concerns based on the unstable nature of the watershed and the crossing location where they had intended to begin a stream restoration project in upcoming years. The MCWA didn't want to adapt having to do a greater amount of stream restoration because the little forested buffer that remained was removed by the gathering operator. The MCWA was also concerned about their future project as they would also be working in that same section of the stream and possibly need to work around a trenched gathering line. The MCWA was very concerned about the unstable nature of the watershed (glacial till soils) as inches of rain moves a great deal of sediment and totally changes the stream bed. Swimming holes are filled in while other new areas open up; concerning the MCWA was the depth of cover of the trench would not be enough to prevent a flood event from not exposing the gathering line and creating a public safety issue in the midst of a flood event. Like any organization, MCWA has members who are responsible for water quality sampling,

coordinating litter pickup, grants, stream liming and unconventional drilling activity within the watershed. The member responsible for following unconventional drilling activity regularly corresponded with the operator, attempting to have dialogue over this particular stream crossing. It took six months of persistence and finally the operator agreed to a meeting. The MCWA had their engineer on hand and all the key people from the gathering operator were present. The MCWA advocated that HDD be employed for this stream crossing. The operator was fairly intent on a trenched crossing. They did become more aware of the challenges within the watershed on the two branches of the main creek and the main creek. That first crossing and several since have all been HDD.

Connection for Oil, Gas & Environment in the Northern Tier (COGENT) contacted another operator about a stream crossing of concern. There was an area prone to slide where a gathering line of concern had already been constructed and in operation with no dialogue despite repeated requests. The DEP has no authority over sitings even when they are in locations of concern, such as areas prone to slide in glacial till soils. COGENT repeatedly contacted the operator proposing to cross both the present operating gathering line, area prone to slide and stream. Finally, COGENT contacted the operator and advised, you want to cross that area. We’re not too keen on how you want to do it. Please take this opportunity to spend time with us in the field and see what we are talking about. Eventually, prior to construction of the new proposed gathering line that area prone to slide did exactly that.

The second operator planning the stream crossing contacted COGENT and spent the day in the field meeting with both COGENT and the MCWA who is actively involved in a similar unstable watershed. Stream restoration options were discussed. The operator continued with their plans to trench across the stream, but they modified their plans for a deeper trench and included streambank restoration as much as possible in the limit of disturbance along with planting trees as well.

Both of these examples justify that success may be experienced when meeting with those knowledgeable and concerned about pipeline locations in their vicinity. There is great benefit in engaging those knowledgeable, organizations willing to make suggestions for the better of gathering line locations and construction. In both of these situations, the operator lost a minimum of six months and while they both made improvements, more could've been achieved had they had the time.

Therefore, a Best Practices mechanism to engage watershed associations is very worthwhile. Watershed associations care for the stream, advocate on behalf of the stream and are the most actively engaged on local watershed issues. Gathering Pipeline Operators need to take advantage of meeting with these local community experts.

Gathering lines located near schools create unique challenges in rural areas where there are limited first responders, some first responders are now employed by industry and their emergency role will be with their employer rather than their volunteer unit, school bus drivers are also the local first responders and a township supervisor may also be active in the fire department. In rural areas, people active in the community often fill many roles. So in the event of a gathering line failure near a school, it’s all hands on deck. It is not the time to plan, but

rather it is time to have a plan in hand. Incident Action Plans (IAP) are often employed as plans tailored for unique hazards first responders may find themselves responding. The plan also provides opportunities for the fire department to review the IAP so they are adequately prepared in the case of a most unfortunate event as a pipeline failure near a school.

Traditionally, the IAP is prepared by the fire department or they may contract a professional service. These plans are expensive and with budgets being tight, and volunteers not as available as in decades ago, often despite the need of an IAP, they may not have one. The operator is able to provide a great service here by partnering with the fire department and paying/preparing the IAP. At the open house, the operator and fire department is able to share with parents and teachers in the event of a gathering line failure how the evacuation would work. The concept of IAP with its benefits is transferable to cases of senior housing units and hospitals. Gathering lines are located either on school, senior housing properties or properties or near school, hospital or senior housing properties that may be of exceptional importance during an event of a pipeline failure. One of the most commonly utilized methods for pipeline safety is the use of odorant in natural gas pipelines. The detection of odorant is the first signal of a pipeline failure. An operator adhering to Best Practices will automatically odorize all gathering lines according to the recommendation.

Actions that would be required to achieve recommendation:

- Pipeline Operators conduct open houses that include participation with the local fire department.
- Pipeline Operators engage the active watershed association (if there is one).
- Pipeline Operators odorize gathering lines within a specified distance from schools, hospitals and senior housing.
- Pipeline Operators partner with the local fire department to create a unique and specific Incident Action Plan for all schools, hospitals and senior housing within the fire departments jurisdiction near gathering lines.

Challenges to achieving recommendation:

Pipeline Operators need to understand that in rural areas where less people reside, open house meeting attendance will also be low numbers. Generally, those in rural areas living within the gathering fields are very interested in information regarding the development and transportation of the resource. Sometimes attendance of 40 people is a crowd. Those 40 people all know everyone; one family member may attend and share what they learn with several families. So, it’s not so much how many attend, but more so, what information is being provided. If the operator publicizes that they are going to have maps available and talk about safety or discuss a pipeline that is located near the school, people will attend.

Sometimes there is a disconnect between the pipeline engineers and the watershed association. If the engineer hasn’t experienced unstable glacial till soils, tremendous amounts of rain and subsequent flooding along with other localized and unique issues they may not be aware of what an excellent resource the local watershed association may be.

The operator may be reluctant to odorize only particular gathering lines that are near schools, hospitals and senior housing.

The operator may be reluctant to partner with the local fire department to create an IAP.

Additional supporting material:
Wyoming County, PA SALDO (Pipelines) adopted June, 2011.

Issues to address (such as cost, environmental impacts):
Pipeline Operator cost associated with hosting open house.
Pipeline Operator cost should a watershed association make recommendations for construction or route changes.
Costs associated with odorization.
Costs associated with developing IAPs.

Draft

Pipeline Safety and Integrity Workgroup Recommendation #13

Develop Public Education Program for Emergencies

Full Recommendation:
The establishment of a Best Practice associated with the development of a Public Education Program for Emergencies that would provide for increased transparency between Pipeline Operators and hosting communities. The gathering fields lack the transparency of community outreach, input and involvement that is commonly seen among FERC projects in all class locations. With the number of new regulated pipeline projects across the Commonwealth there is a need for greater transparency in community outreach. The purpose of this recommendation is to increase infrastructure transparency in the areas of maps, education and pipeline location by guiding industry with best practices.

For purposes of this document "infrastructure" refers to gathering lines, gathering line segments, transmission pipelines, compressor stations and pumping stations.

1. Community Outreach
   a. Prior to contacting land agents to meet with landowners regarding infrastructure, the best practice regards community outreach. The Pipeline Operator provides a community open house. The open house should be located near the municipality/municipalities and counties of the proposed infrastructure.

   b. Information to be provided at community open houses include but are not limited to the following:
      1. Map of proposed pipeline routes, including access roads, compressor stations, pump stations and valve locations.
         a. A discussion of the 'preferred route' and 'alternative routes'.
      2. Information along the route as to the proposed pipeline's name, products transported, diameter, operating pressure and PIR (potential impact radius).
      3. Information of possible indicators of an incident along the infrastructure and who to call.
      4. Information of nearest office and control room.
      5. Information on integrity management, including prescribed response time.
      6. Information regarding emergency response during a pipeline failure.
      7. Information concerning construction, pipeline safety, ROW maintenance, invasive species control.
      8. Information regarding PA1Call and damage prevention.
      9. Pipeline Operator's responsibility regarding ROW issues.
      10. Landowner's responsibility regarding ROW issues.
      11. Consultation Zones.
         a. Discuss Consultation Zones: As stated in PIPA, two key practices address the development and implementation of "consultation zones" and "planning areas" when making decisions regarding land use planning and development near transmission pipelines: 1) Who: Participants can be local governments, property owners/developers, transmission pipeline

Pipeline Operators and state real estate commissions. 2) Why: PIPA's goal is to reduce risks and improve the safety of affected communities and transmission pipelines through actions that taken by key stakeholders relative to proposed changes in land use or new development adjacent to existing transmission pipelines. As example, the PIC established Consultation Zones are delineated on all maps and serve to proactively indicate the area in which Pipeline Operators, landowners and developers should contact the county planning commission when Pipeline Operators are planning new or expanding pipelines or developers or landowners are planning land use in proximity to existing ROWs.

b. If there is either a county or local ordinance; a display indicating when to consult with the Pipeline Operator concerning development near the pipelines.
c. If there is no county or local ordinance; the Pipeline Operator provides a consultation zone policy based on ROW width, pipeline diameter, pressure and potential impact radius.

12. Construction and operational time table.

c. Notification to citizens (via robocall) and local officials (direct call) of planned blowdowns shall be made 24 hours prior to planned blowdown.
    1. Consider http://www.epa.gov/gasstar/documents/ll_compressorsoffline.pdf
    2. Consider adding recommendations from recent EPA release.
    3. Consider public education program re: capture of blowdown for reuse / recycling/ methane emission reduction. Recommendations are compliant with principles of SMART Planning, USACE, PHMSA (PIPA).

Relevant agencies:
County
Townships
Emergency Response
Fire Department
PA1Call

Justification:
A "one-size-fits-all" public awareness program across all pipeline systems is not the most effective approach. 49 CFR Section 192.616(b) requires that an Pipeline Operator assess the unique attributes and characteristics of its pipeline in developing its public awareness program. In the gathering fields, it is not uncommon for a pipeline to be routed along one's property boundary with no formal notice, contact or other communication opportunities. Sometimes landowners aren't fully aware that if they were to host a gathering line on their larger property, it would keep pipeline infrastructure away from small properties where the impact is greater. Understanding of this issue alone is of value to gathering Pipeline Operators attempting to route pipelines away from rural populations. Some local governments and counties, such as Wyoming County, PA have ordinances that dictate setbacks and restrict land-use on future subdivisions along pipeline ROWs. The ordinance is restrictive to the landowner, even if the ROW isn't on

their property. With provisions of development based on edge of ROWs and ROWs commonly following property boundaries, depending on the type of development and associated setback off the edge of the ROW, potentially a property owner could have a property that their plans for future land use will not be in compliance with the county or local ordinance. Beyond the gathering fields, the expansion of pipeline infrastructure throughout Pennsylvania mirrors these issues. Community outreach focusing on development and living along pipelines provides a good alternative to avoiding encroachments and problems.

During the FERC pre-filings, pipeline operators host open houses with lots of staff and information and are well attended by the interested public. Those living along gathering line routes have the same interest and concerns but if they are not the hosting landowner, they have very little or no opportunity to interact with the gathering line Pipeline Operator.

By providing the "preferred route" proposal along with alternatives, communities may see the benefit of how the Pipeline Operator is striving to route the gathering line away from rural populations, schools and hospitals. Sharing this information with the community, while the Pipeline Operators generally dislike doing this due to ongoing negotiations, in some cases will actually help them succeed with their preferred routing. Everyone wants safe pipelines with the least disruptive routes. Sharing information may help make that a reality.

People want to know about the pipeline near their home. They want to know how near they may be to the potential impact radius. They want to know who to call, what to look for, how the pipeline is monitored for safety and the location of the Pipeline Operator's control room. They want to feel safe around pipelines, so by sharing emergency response information and even inviting the fire department to attend and talk with residents about their training and preparedness will go a long way in assisting people to understand pipelines and their associated risks.

Third party damage is a real concern along all pipelines. It is not unusual for rural families to own backhoes, tractors, quads and other equipment that have the potential to come into contact with an active gathering line. Third party damage in suburban areas is a concern due to pipeline/community sprawl; each encroaching on the other. Learning about damage prevention and the role of PA1Call is of great benefit.

Not only landowners, but community members as well are concerned about the ROWs commonly seen in their areas. They are interested in knowing who and how they are maintained and what Pipeline Operator's and landowner's responsibilities may be.

An open house is a good opportunity to share with the public any existing ordinances that pertain to consultation zones along pipelines. This is a good opportunity to invite the county or municipal planning department to be a participant in the open house. It is a good way to get people thinking about planning along pipelines. In the absence of an ordinance pertaining to consultation zones, a best practice for a Pipeline Operator is to establish an in house consultation zone policy and actively engage those property owners whose property falls within the zone. Education is a potential pathway to avoiding pipeline encroachments.

The 2010 PIPA Report, Appendix F notes that open houses for transmission pipeline operators are beneficial as they assist the public in understanding risks. For an intensive gathering line network and transmission pipelines, the opportunities and benefits are replicated.

Lastly, people are very interested in the construction time table. Those living along HDD activity may have questions about noise and the operation itself. They want to know the hours the activity will be occurring. They want to know who to call in case they experience impacts during construction.

Community open houses provide opportunities for awareness that will put more eyes on the infrastructure noticing symptoms of concern and better understanding and awareness of the importance of calling 811 before digging.

Actions that would be required to achieve recommendation:

- Pipeline Operator provides an open house in accordance with the recommendations.
    - Includes the emergency response providers
    - Includes the jurisdictional planning department
- Pipeline Operators buy into a different approach to community outreach.
- Public buy in - trust factor.

Challenges to achieving recommendation:

- This is a radical change to what has been commonly done in the gathering fields. Pipeline Operators may be reluctant to change. Not many gathering Pipeline Operators are involved in the PITF process, so they may feel they don't have ownership in the process.
- Pipeline Operator accepts a different approach to community outreach.
- Public buy in - trust factor.

Additional supporting material:

- Wyoming County SALDO – Pipelines, adopted June, 2011.
- 2010 Pipelines and Informed Planning Alliance (PIPA) Report, Appendix F
- Consultation Zones – PIC Interactive Map System

Issues to address (such as cost, environmental impacts):

The outreach costs pretty much fall on the Pipeline Operator. This cost is an appropriate cost of doing best practices in business. It is a reasonable cost that will have value in the years to come.

Draft

Public Participation Workgroup Recommendation #1

Establish Statewide Pipeline Information Resource Center

Full Recommendation:
Pennsylvanians deserve a comprehensive, robust and trusted statewide resource to find accurate information on pipelines in the Commonwealth. Pennsylvania should develop and maintain a statewide information resource center consisting largely of digital communications including a website, general email box, automated phone number and other electronic subscriber resources such as Twitter and Facebook. A variety of informational materials could be developed, maintained and downloaded from the website or ordered on the phone. This resource center would serve as the primary resource for the public to learn about pipeline development, regulatory oversight, opportunities for public input, and active pipeline projects. Critical to the value of the website would be the ability for users to access consolidated information aimed a key stakeholder groups such as landowners, local government officials and emergency responders.

Realizing that a comprehensive repository of digital information could have a long lead time to implement, the Public Participation workgroup recommends that, in the interim, the attached checklists for landowners and public officials be published on one or several appropriate agencies' websites and that an informational booklet be developed and distributed to potentially impacted landowners that would cover topics including the planning, developing and monitoring of pipeline projects. This booklet would be similar to the Federal Energy Regulatory Commission's (FERC) publication *An Interstate Natural Gas Facility on My Land: What do I Need to Know?* but would include an overview of all types of pipeline projects. Additionally, to ensure that stakeholders are aware of developments, pipeline companies should develop and distribute to stakeholders pertinent information regarding planned pipeline projects including appropriate contact information for the company.

> *Note: The public participation workgroup is aware that other workgroups are also recommending digital communications and resources for various stakeholders. We feel this recommendation could possibly be expanded to encompass these additional recommendations.*

Attached Supporting Documents
- Draft outline for informational topics/resources
- Landowners' Checklist for Pipeline Projects
- Public Officials Checklist for Pipeline Projects
- FERC's publication *A Interstate Natural Gas Facility on My Land: What do I Need to Know?*

Relevant Agencies:
FERC
DEP
Pipelines Hazardous Materials Safety Administration (PHMSA)
Pennsylvania Department of Transportation (PennDOT)

Pennsylvania Emergency Management Agency (PEMA)
Pennsylvania Public Utility Commission (PUC)
County Conservation Districts
Local and Regional Planning Commissions
Local Emergency Management Agencies
Counties and municipalities

Justification:
A statewide interactive website managed and maintained by a state agency would ensure a comprehensive outlook on the impact of pipelines in the Commonwealth.

Actions that would be required to achieve recommendation

- Review best practices of interactive websites (pipeline industry and beyond).
- Identify funding opportunities for development and maintenance.
- Recommend a governance structure to manage the website, collect data and verify its contents.

Challenges to achieving recommendation

- State-agency ownership
- Funding/Resources
- Time needed to deploy
- Project governance
- Accessibility/Standards
- Security of data
- Branding/Design

Draft

Draft Outline for State-Wide Information Resources

Note: Much of the information that we recommend to include on a statewide website/information resource already exists on other sites. Although links to this information would be the easiest way to incorporate the majority of information, it may be best for the owning agency to re-create some resources and customize for Pennsylvania and its citizens to avoid the perception of endorsing specific groups, special interests etc.

Major Topics, Graphics, Videos, Primers
Natural Gas 101
Pipelines 101: generic enough to cover different commodity types
Types of Pipelines and regulatory/permitting process for each type
Pipeline Safety
What to do in an Emergency
Pipeline Construction
Pipeline Routing
Public Awareness Programs
Glossary of Terms
Relevant Agencies and overview of their role in pipeline projects
Energy value chain and the interdependencies of each component
List of active pipeline projects and brief description (with links to company websites)

Audience Portals/Examples of what might be included for different audiences

Landowners:
INGAA's Commitment to Landowners
Landowner checklist
Link to FERC's "A Natural Gas Facility on My Land: What do I need to know?"
Sample easement agreements
FAQs

Local officials:
Local official checklist
Links to active pipeline project websites
Links to PHMSA
PUC
FERC
DEP
Department of Conservation and Natural Resources (DCNR)
Pennsylvania Fish and Boat Commission (PFBC)
Pennsylvania Historic and Museum Commission (PHMC)

Emergency Management/Emergency Responders:
Online training resources
Links to available mapping
Emergency responder organizations in PA

Draft

Citizens:
Links to PHMSA
PUC
FERC
DEP
DCNR
PFBC
PHMC

Links
Active pipeline project websites
PHMSA
PUC
FERC
DEP
DCNR
PFBC
PHMC
Conservation Districts
Penn State Ag Extension
PHMSA for regulations, safety and compliance information
U.S. Energy Information Administration (EIA)
Marcellus Shale Coalition
Pipeline Safety Trust

Downloadable documents/Printed information
Checklists
Informational booklet

Draft

Landowners' Checklist for Pipeline Projects

What Do I Need to Know?

The location of existing and new pipeline infrastructure is important to Pennsylvania and its property owners. Landowners who may be affected by a pipeline project on their property need to be aware of the regulatory and permitting procedures, the rights they have in the processes, how the location of pipeline facilities is decided and the safety and environmental issues that may be related to the facilities. This checklist is designed to help guide property owners who may be affected by new pipeline projects. This is not an all-inclusive list of questions and some questions may not apply depending on the type of project. This is not intended to be a legal document or give legal advice. If necessary, landowners should consult with an attorney regarding potential encumbrances to their property.

Note: The FERC publishes a comprehensive guide for landowners about the siting of interstate natural gas facilities. Although this guide is written specifically for interstate natural gas pipeline projects, landowners may find much of the information useful for other types of pipeline projects.

General/Background Information

1. What is the name of the pipeline company proposing the project?
2. What is the scope of the project?
3. Why is the project being proposed?
4. Why is the company looking at routing the project in this area?
5. If applicable, what is the name of the contract land company, i.e., who do the contract land agents work for?
6. What type pipeline is being proposed? Interstate, intrastate, or distribution?
7. What type of commodity would be carried? (e.g., natural gas, natural gas liquids, oil)
8. Is the representative familiar with the differences between the regulatory and operational processes associated with each type of pipeline?
9. Is the representative familiar with the regulatory processes related to the proposed project? If so, what are the major milestones and timeline for the project?
10. How many years has the company been in business?
11. How many years' experience does the company have in building and operating this type of pipeline?
12. Does the company have any references from the area that can be contacted?
13. What entity regulates the operation of the pipeline once it's in-service?

Survey Information

1. Where on my property is the company proposing the place the pipeline?
2. How did the company select this location?
3. What is the timeline for the project and easement acquisition?
4. How much input do I have in the placement of the pipeline on my property?
5. What does survey permission mean?
6. Can I be present during surveys?
7. What types of surveys are to be conducted?
8. What is the timing and duration for each type of survey crew?

Draft

9. What should I expect to see on my property after the crew is finished? (e.g., stakes, cleared brush).
10. What is the benefit to the landowner of granting survey permission?

Easement Acquisition Information

1. What is an easement?
2. What easement rights is the company asking to purchase?
3. What is the difference between a temporary easement and a permanent easement?
4. Will I retain fee ownership of the easement?
5. How can I use the easement after the pipeline is in service?
6. What are the restrictions related to the easement?
7. Will the facilities be buried on my property? How deep?
8. Is the company proposing any above ground facilities on my property?
9. What compensation is offered to the landowner for the easement rights, temporary (construction corridor) work space, crop damages, restoration and reclamation?
10. How is compensation determined?
11. Is the company seeking easement rights for one line or multiple lines?
12. Is the company offering to option the easement rights or purchase them?
13. Is the compensation a one-time payment?
14. How does the company compensate for crop loss and crop damage?
15. How does the company compensate for lost timber?
16. Will I be able to obtain a property plat/survey showing the easement on my property?
17. Is the company bonded and insured?
18. Is there a weight restriction associated with operating equipment over the pipeline?
19. How can I ensure the pipeline is buried deep enough to not interfere with the continued use of my land including deep tilling, operating farm and ranch equipment, trucks, trailers, wagons, or any equipment unique to the land use on my property?
20. Does the easement agreement contain an indemnification clause?
21. If so, does the company hold the landowner harmless of any liability related to the operation of the pipeline?
22. Will the company pay for my legal expenses if I choose to consult with an attorney?
23. What happens if the landowner and the company cannot reach an agreement?

Construction Information

1. How wide will the construction corridor be?
2. How long does the company anticipate construction activities on my property?
3. Will these activities occur in sequence or will there be gaps during construction activities?
4. How long will the ditch be open on my property?
5. What will the company do to ensure the safety of my family, my livestock, etc. during construction?
6. What if I have problems with restoration issues during construction, restoration or maintenance activities?
7. What best management practices are used related to soil segregation, soil compaction, moisture conductivity, soil fertility and acidity, re-vegetation, debris cleanup during and after construction.

Draft

8. What happens if the restoration of my land does not return it to pre-construction conditions?
9. Can I specify seed mixtures?
10. What happens if the crop yield is not back to pre-construction conditions within a specified time?
11. Who inspects the construction activities?
12. Who can I call if I have a problem during construction?

Operations Information

1. Who is responsible for the operation, safety and maintenance of the pipeline after it's in service?
2. At what pressure will the pipeline be operated?
3. What is the maximum allowable pressure for the pipeline?
4. Does the product being carried have a smell?
5. Can the company access the easement without my permission after the pipeline is in service?
6. What happens if the company needs to dig up the pipe for any reason?
7. Will I be compensated for damages if the company needs to dig up the line for any reason?
8. What happens to the pipe if the company decides to abandon the line?
9. Who can I contact about the pipeline on my property?

Environmental Information

1. What types of permits are required for the project?
2. Which agencies review the required permit applications?
3. How do I make my voice heard during the permitting processes?
4. Is there a deadline for comments?
5. Which agencies ensure compliance with the permit requirements?
6. Does the company employ best management practices related to restoration and reclamation? If so, what are they?

Draft

Public Officials' Checklist for Pipeline Projects

What Do I Need to Know?
Public outreach/stakeholder engagement is much more than mere notification. It is an opportunity to educate and provide information regarding pipeline projects. Keeping local officials and community leaders informed about a project helps ensure they are knowledgeable about a company's plans to interact with their constituents.

This checklist is designed to help guide local officials whose communities may be affected by new pipeline projects. This is not an all-inclusive list of questions and some questions may not apply depending on the type of project. Often, initial project briefings occur while the commercial viability and scope of a project are still under development. Please be aware that the company may not have answers to all of the questions included on this checklist at the beginning of a project. Many of these questions will be answered over time with continued communication and coordination with the pipeline company.

This checklist is not intended to be a legal document or give legal advice. Local officials should consult with their solicitor, if necessary.

Relevant Groups:

- Township Supervisors/Mayors
- Township Council Members
- County Commissioners
- Planning Commissions
- Zoning Boards
- Township managers
- Emergency Management Officials/VFDs
- Local Police Departments
- Township road Masters
- Regional Government
- 811 representatives

Background/Initial Information

1. What is the name of corporation?
2. What is the name of the project?
3. What type of project is this? (transmission, gathering, liquids)
4. How many years has the company been in business?
5. How many years' experience does the company have in building and operating this type of pipeline?
6. Can you provide a brief description of the project including scope, regulatory process, and timeline?
7. What are the regulating agencies that have authority over the project and how can I contact them?
8. Why is the project being proposed? What is the purpose and need for the project?
9. Can you provide an overview of the location, size and type of facilities that are planned for the project overall and specifically for our county/township/borough?

Draft

10. Are there any aboveground facilities planned for our county/township?
11. Can you provide a brief overview of the regulatory process associated with this project?
12. What is the role of local officials in the process?
13. Where is the project located? Where specifically in my county/township?
14. What are the potential impacts of the project on my local community e.g., miles of pipe, number of potentially impacted landowners/tracts, etc.?
15. When will you start contacting potentially affected landowners?
16. How will potentially affected landowners be contacted?
17. What types of surveys will be conducted and when? (civil, environmental, cultural, geotechnical)
18. Can you provide a brief description of the survey methodologies that will be used? Special equipment?
19. Have you identified areas of congregation (places of worship, schools, etc) in our community and how close are they to your proposed route?
20. How sure is the company about the proposed route?
21. What changes to the project/route/timeline does the company anticipate as the project moves through the regulatory process?
22. How will we be notified of these changes?
23. What is the name of the project manager(s) and their contact information?
24. Are there any other pertinent contact telephone numbers?
25. What are the names of consulting companies that have landowner contact?
26. What are the potential benefits and impacts of proposed project (environmental, economic, jobs, economic development)?
27. Is there a project website? Can we link to the project website from our county/township website?
28. Where can I go for projects updates and more information about the project?
29. What is the procedure for questions and answers?
30. What are the opportunities for input/public participation?
31. Are there any proposed public events? If so, when/where?
32. How does the company coordinate with local emergency responders?
33. What do you do in the event of a pipeline emergency?

Permitting Phase

1. What permits/certificates/approvals does the company have to obtain to construct the project?
2. How far along is the company in the regulatory/permitting process?
3. What happens if you find sensitive environmental resources in our area?
4. What type of road permits do you anticipate needing?
5. Will roads be restored to pre-construction condition?

Construction Phase

1. What are the corridor widths? (construction/temporary easement and permanent easement)
2. How long does the company anticipate construction activities in our community?
3. Will construction activities occur in sequence or will there be gaps during construction activities?

4. What will the company do to ensure the safety of the public during construction?
5. Who inspects the construction activities?
6. Who can we call about problems during construction?

Operations Phase

1. Do we have any operations personnel in the county/township? Who are they?
2. What entity/agency regulates the operation of the pipeline once it's in-service?
3. How is the pipeline maintained once it's in service?
4. What are your notification procedures for planned and unplanned maintenance activities?
5. How often would the pipeline in our county/township be inspected?
6. How is the pipeline inspected? And how often?
7. Do you notify the local community and landowners when inspections occur?
8. Are there any future plans and projects on the horizon?

Draft

Public Participation Workgroup Recommendation #2

Adopt Guidelines for Public Participation

Full recommendation:
Public participation is a critical component for pipeline project design, construction and operation. Pennsylvania believes that early and continuous involvement of all stakeholders can help develop better overall pipeline project solutions. An exchange of information between pipeline companies and stakeholders early in the planning of projects promotes meaningful participation in the process. Stakeholders may include any formal or informal group, organization, agency, elected officials, community leaders, and landowner or identified individual who has involvement in the regulatory and permitting processes or interest in the outcome of the project.

The Commonwealth should adopt guidelines for public participation that promote two-way communication between pipeline companies and stakeholders and that consider public input into the planning, construction and operation of pipelines and associated infrastructure.

Attached Supporting Documents
Note: The Public Participation workgroup feels strongly that the Commonwealth should adopt guidelines for public participation that explain the behaviors and best practices expected from pipeline companies with existing and/or planned operations in Pennsylvania. However, the workgroup could not come to consensus on a guidelines document. Therefore, the group is submitting two versions of a draft document for the Commonwealth to use as a template for the development of a guidelines document.

Guidelines for Public Participation for Pipeline Companies Operating in Pennsylvania: DRAFT: VERSION 1

Guidelines for Public Participation for Pipeline Companies Operating in Pennsylvania: DRAFT: VERSION 2

Draft

Guidelines for Public Participation for Pipeline Companies Operating in Pennsylvania

DRAFT: VERSION 1

Public participation is a critical component for pipeline project design, construction and operations. Pennsylvania believes that early and continuous involvement from all stakeholders can help develop better overall pipeline project solutions. An exchange of information between pipeline companies and stakeholders early in the planning of projects promotes meaningful participation in the process. Stakeholders may include any formal or informal group, organization, agency, elected official, community leader, and landowner or identified individual who has involvement in the regulatory and permitting processes and/or interest in the outcome of the project.

The Commonwealth should adopt guidelines for public participation that promote two-way communication between stakeholders and pipeline companies and that help ensure the incorporation of feedback into the planning, construction and operation of pipelines or associated infrastructure within Pennsylvania.

When considering, companies should adopt the following guidelines:

Early and Continuous Involvement
Pipeline companies should engage with and promote awareness to affected stakeholders early in the project planning process and continue outreach throughout the operation of the pipeline. Pipeline companies should communicate with stakeholders during the planning process to educate communities about the potential benefits and impacts of the project, as well as the company's commitment to the safety and security of their pipeline systems.

Good Faith Actions
Enabling the public to be actively engaged in the planning of pipeline projects through early and continuous access to information and input into the process builds trust and demonstrates a good faith effort on the part of pipeline companies to engage in public participation.

Pipeline companies should strive to understand stakeholder issues and respect differing viewpoints. Understanding the range and diversity of stakeholder issues and accepting that not all stakeholder issues can be resolved to individual stakeholder's satisfaction, pipeline companies should act in good faith to address concerns in a timely, honest, fair and reasonable fashion.

Respect and Trust
Positive, lasting relationships are built on mutual respect and trust. Pipeline companies should strive to understand issues from the stakeholder's perspective and help those stakeholders understand the processes associated with building pipeline infrastructure. Pipeline companies should recognize that stakeholder engagement should be a two-way communication of ideas.

Draft

Accurate and Timely Information
During initial project briefings pipeline companies should provide stakeholders with information regarding the location and scope of the project, the purpose and need for the project, and the processes in place governing easement acquisition, certification, construction, operation and maintenance of pipeline facilities as well as the importance of energy infrastructure. Other opportunities for education from the company and input from stakeholders could include formal meetings, land agent relationships, written notifications and newsletters, digital and electronic project updates, frequently asked questions on company website.

Respect for Regulatory Processes and Procedures
Final approval for pipeline projects is not a certainty and interactions with stakeholders should reflect that understanding. Prior to project approval, regardless of the project-specific regulatory process and procedures, actions taken to execute a project are at the company's risk. Pipeline companies should communicate clearly the processes and procedures needed to obtain the appropriate certificates and permits needed to construct, operate and maintain a pipeline system.

Commitment to Safety and Compliance
Pipeline safety is a responsibility shared by all stakeholders. Community and pipeline safety is improved through active stakeholder participation, especially with regard to public awareness, damage prevention, risk-informed land use planning, and emergency management efforts. Pipeline companies must comply with the specific rules, regulations, process and procedures that govern the safe operation of their pipeline systems and should help educate stakeholders on their roles in ensuring pipeline safety.

Responding to Issues
Pipeline companies should make every effort to respond to stakeholder concerns in a timely fashion. To enhance direct communications and timely responses, pipeline companies should educate stakeholders about the various channels available for stakeholders to communicate with pipeline companies including phone, email, social media, project and company websites, and other channels as available.

Commitment to Training
Pipeline companies should strive for continuous improvement in project execution. With the demand for natural gas increasing and many companies and stakeholders invested in the industry, pipeline companies should train their representatives to interact positively and productively with interested stakeholders in conveying information and addressing stakeholder concerns.

Industry Ambassadors
Each pipeline company employee and representative is an ambassador for the industry. Pipeline companies should ensure their employees and representatives interact with stakeholders in accordance with these guidelines.

Draft

Guidelines for Public Participation for Pipeline Companies Operating in Pennsylvania

DRAFT: VERSION 2

Public Participation is a critical component for pipeline project design, construction and operations. Pennsylvania believes that early and continuous involvement of all stakeholders can help develop better overall pipeline project solutions. An exchange of information between pipeline companies and stakeholders early in the planning of projects promotes meaningful participation in the process. Stakeholders may include any formal or informal group, organization, agency, elected officials, community leaders, and landowner or identified individual who has involvement in the regulatory and permitting processes or interest in the outcome of the project.

The Commonwealth should adopt guidelines for public participation that promote two-way communication between stakeholders and pipeline companies and incorporate public input into the planning, construction and operation of pipelines and associated infrastructure.

Included in the guidelines would be the Commonwealth seeking the following from pipeline companies:

Early and Continuous Involvement of Public

1. Contact public early in the planning of projects. Public would include stakeholders described above.

2. Hold an initial informal briefing meeting with municipal and county officials to discuss, for example, need for the project, routes being considered, information on surface infrastructures, timeline of project, contact persons including project manager, role of land agents, particular local conditions, safety concerns.

3. Conduct initial project briefings with stakeholders while company is considering possible routing of a pipeline project to provide information including proposed routing, product to be transported, location of surface facilities such as compressor stations, and timeline of project. Include easement acquisition as a topic and the role of land agents. Provide for a Question and Answer portion of each meeting to address questions of construction, operation, maintenance and safety.

4. Provide timely updates to stakeholders on a project including additional public meetings.

Accurate and Timely Information

1. Pipeline companies should make every effort to provide information to stakeholders in a timely fashion. To enhance direct communications and timely responses, pipeline companies should educate stakeholders about the various channels available for stakeholders to communicate with pipeline companies including phone, email, social media, project and company websites, and other channels as available.

Draft

2. Pipeline companies should set up a communication process to include tracking answers to stakeholder questions.

Good Faith Actions
Enabling the public to be actively engaged in the planning of pipeline projects through the actions set forth in these guidelines builds trust and demonstrates a good faith effort on the part of pipeline companies to engage in public participation.

Respect for Regulatory Processes and Procedures
Final approval for pipeline projects is not a certainty and interactions with stakeholders should reflect that understanding. Prior to project approval, regardless of the project-specific regulatory process and procedures, actions taken to execute a project are at the company's risk. Pipeline companies should communicate clearly the processes and procedures needed to obtain the appropriate certificates and permits needed to construct, operate and maintain a pipeline system.

Commitment to Safety and Compliance
Pipeline safety is a responsibility shared by all stakeholders. Community and pipeline safety is improved through active stakeholder participation in a dialogue with pipeline companies, especially with regard to public awareness, damage prevention, risk-informed land use planning, and emergency management efforts. Pipeline companies must comply with the specific rules, regulations, process and procedures that govern the safe and environmentally sound operation of their pipeline systems and should help educate stakeholders in their roles to promote pipeline safety.

Commitment to Training
Pipeline companies should strive for continuous improvement in project execution that includes two-way communication between stakeholders and pipeline companies. With the demand for natural gas has come a substantial increase in the number of pipelines being constructed in Pennsylvania. Pipeline companies should train their representatives including their land agents to interact positively and productively with stakeholders in conveying information and addressing stakeholder concerns.

Industry Ambassadors
Each pipeline company employee and representative is an ambassador for the industry. Pipeline companies should ensure their employees and representatives interact with stakeholders in accordance with these guidelines.

Public Participation Workgroup Recommendation #3

Amend General Information Form to Require Information on Public Participation

Full recommendation:
The DEP should amend the General Information Form to include a question related to whether pipeline companies have prepared a public participation plan.

Relevant agencies:
DEP

Justification:
The addition of this question on the General Information Form helps increase the awareness of the importance of public participation in the permitting of pipeline projects.

Actions that would be required to achieve recommendation:
DEP policy change and updating standard operating procedures.

Draft

Public Participation Workgroup Recommendation #4

Form Pipeline Advisory Committee

Full recommendation:
The Commonwealth should form a Pipeline Advisory Committee to provide technical advice and guidance regarding policies, procedures and best management practices that could be implemented to enhance the development, management and maintenance of safe and reliable pipeline infrastructure in the Commonwealth. This committee could include state and local officials, pipeline industry experts, landowners, and members of the public.

Alternate recommendation:
Note: Recognizing that forming a Pipeline Advisory Committee may have a long lead time and involve legislation, the public participation workgroup offers an alternate recommendation to be used in the interim or in place of the above recommendation.

The DEP maintains numerous existing advisory committees. These committees provide valuable input to DEP regarding policy making and regulatory development. DEP should consider adding members of the general public, Non-Government Organizations (NGOs) interested in pipeline development and representatives of the pipeline industry to existing committees including, but not limited to, Water Resources Advisory Committee and the Air Quality Technical Advisory Board to provide technical advice and guidance regarding policies, procedures and best management practices that could be implemented to enhance the development, management and maintenance of safe and reliable pipeline infrastructure in the Commonwealth.

Draft

Public Participation Workgroup Recommendation #5

Require Publication of Intent to Apply for DEP Permits Associated with Pipeline Development

Full recommendation:
The DEP should require that applicants for DEP permits be required to publish their intent to apply, including the type of project and location, in a daily or weekly paper of general circulation in each county in which the project would be located for at least 3 days in advance of submission. Proof of publication should be provided along with the application.

Relevant agencies:
DEP

Justification:
DEP applications are currently noticed only the *Pennsylvania Bulletin*. This recommendation is similar to the FERC's notification requirements found in 18 CFR 157.6 (d)(1)(iii) for applicants seeking a Section 7 Certification for interstate natural gas pipeline projects. In some cases, especially in the case of many DEP general permits, the general public is unaware of an applicant's intent to seek permits for pipeline infrastructure development. By publishing a notice of a company's intent to apply for permits in local newspapers, the public would be afforded a better opportunity for public comment. The workgroup's intent is to expand DEP's existing notification requirements.

Actions that would be required to achieve recommendation:
This recommendation will likely require either regulatory changes or modifications of existing general permits. Applicants should be strongly encouraged to take this step until regulatory changes or general permit modifications are complete.

Draft

Public Participation Workgroup Recommendation #6

Issue Annual Report Implementations on the PITF Recommendations

Full recommendation:
The DEP, cooperating with other relevant agencies, should issue a report detailing the progress in implementing the recommendations of the Task Force one year after the Task Force report is finalized. Then, every two years thereafter, DEP should update the report, and include additional information regarding build-out of the state's pipeline infrastructure.

Relevant agencies:
DEP

Justification:
Regular information about the status of the recommendations of the Task Force and pipeline development generally will increase the public's ability to engage with this issue.

Actions that would be required to achieve recommendation:
Legislation would be required to make issuance of a report mandatory; however either DEP Secretary or Governor could direct issuance of a report.

Challenges to achieving recommendation:
Staffing and Budgetary constraints.

Draft

Siting and Routing Workgroup

Introduction

The Siting and Routing workgroup submits the following recommendations for consideration for future oil and gas pipeline projects in the Commonwealth. The members of our workgroup represented stakeholders from oil and gas companies, environmentalists and government agencies. These recommendations are the result of weeks of deliberation about the best ways to balance pipeline development with environmental conservation and community needs. Siting and routing can be disruptive to the surrounding communities and environment. Our recommendations contend that planning is a critical component of any pipeline siting and routing process. All stakeholders should consider development choices that avoid and minimize impacts to communities, habitats, water and wildlife. This is not to say that mitigating impacts is possible in all situations. However, in those instances where impacts may be mitigated our workgroup strongly encourages stakeholders to do so.

Pennsylvania's incredible geological and environmental diversity makes siting and routing a very complicated process. As a consequence, there are instances where local and state regulations conflict and make it difficult to finish a project in a timely manner. Our workgroup proposes the creation of a statewide technical review committee to review applications crossing multiple Department of Environmental Protection (DEP) regional boundaries to give consistency and timeliness to every review. This committee could also provide guidance to oil and gas companies when they are receiving conflicting directions from multiple state agencies.

Similarly, many of our workgroup members have received conflicting guidance from staff within DEP. The DEP's regional office staff understand the environmental and geological nuances of different portions of the state. Again, this sometimes results in conflicting guidance from the regional and the central DEP offices. To reconcile these differences, our workgroup recommends creating a DEP Plans and Procedures Manual to serve as a reference for staff and stakeholders across the Commonwealth.

The Commonwealth and stakeholders also need to define the term "cumulative impact" with respect to intrastate pipeline projects. Intrastate and interstate pipelines have different cumulative impacts and different processes to mitigate those impacts. Currently only interstate pipelines must undergo a stringent cumulative impact assessment through the Federal Energy Regulatory Commission (FERC). We propose the creation of an interdisciplinary taskforce to examine what cumulative impacts mean for intrastate pipelines. The taskforce would study research projects, case studies, best management practices, planning tools, and mitigation programs to come up with appropriate policy recommendations for intrastate pipelines.

Our other recommendations discuss the PA1Call system, the need for more data availability, using third party consultants to aid DEP staff, and continuing successful stakeholder engagement practices for pipeline developers. We hope these recommendations will encourage helpful dialogue and the creation of practical policies that will help grow Pennsylvania's economy and preserve our natural resources.

Siting and Routing Workgroup Recommendation #1

Utilize Planning Process Appropriate for the Scale of the Pipeline Project

Full recommendation:
Planning at an appropriate scale should be the foundation for a pipeline project with the overarching goal of avoiding and minimizing local and cumulative impacts to communities, habitats, water and wildlife. Planning at the appropriate scale can influence infrastructure placement and design to avoid potential adverse impacts, and to achieve more effective, integrated management of resources and ecosystems. When developing infrastructure, pipeline companies and public agencies should consider the range of tradeoffs in costs and impacts by incorporating social, economic, and environmental data at relevant scales. This planning approach needs to be flexible to account for different project scales, regulatory requirements, environmental and geological conditions, landowner preferences, cultural resources and community values. Pipeline companies should utilize practices appropriate for the individual project that can reduce the impacts from land use changes. Depending on the type of project, this approach should consider using existing corridors, co-locating with other infrastructure, or combining projects when feasible to minimize new disturbance. When co-location of infrastructure or use of an existing corridor is impossible, or would cause a greater impact than a new corridor, then an approach that minimizes corridor width and incorporates vegetation management that creates habitat for wildlife might be more appropriate. In other cases, planning corridors for multiple uses or future re-use for another type of pipeline could be the best approach.

Relevant agencies:
Planning should be a collaborative process among the industry, stakeholders and landowners, as well as the relevant local, state and federal governing bodies.

Justification:
Pipelines and other types of linear infrastructure can have significant impacts on soil, water, habitat and aesthetics, and become permanent features on the landscape. A planning approach to siting this infrastructure that looks at the full scope of planned projects, including assessing existing infrastructure, and alternatives when making decisions about siting new infrastructure can result in reduced cumulative impacts.

Actions that would be required to achieve recommendation:
A planning process would need to be considered by pipeline companies and county and local governments to achieve this recommendation. These governments could pursue a planning process with appropriate zoning or other ordinances. Industry should also consider the use of the best available analytical tools and spatial data needed for effective planning of new infrastructure. An example of this type of planning tool is EnSitu, The Nature Conservancy's Appalachian shale siting tool, which integrates ecological data with development cost analyses to create alternative shale infrastructure layouts (well pads, access roads, and gathering pipelines) that help reduce environmental impacts.

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Challenges to achieving recommendation:
Potential longer approval time that could impact the overall cost of a project and the cost of analytical tools.

Additional supporting material:
The Nature Conservancy's EnSitu tool: http://www.nature.org/ourinitiatives/regions/northamerica/unitedstates/pennsylvania/the-nature-conservancys-shale-siting-tool-summary.pdf . Also see our recommendation about data availability. Lycoming County's Planning Commission's Planning process.

Issues to address:
Access to analytical tools. Access to planners who could recommend the appropriate ordinances.

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Siting and Routing Workgroup Recommendation #2

Create an Inter-Agency Coordinating Committee to Resolve Conflicting Construction Requirements

Full recommendation:
Establish an inter-agency coordinating committee comprised of representatives of various Commonwealth agencies involved in reviewing pipeline applications to resolve construction time restrictions and mandatory installation practices that conflict or are inconsistent with the direction and guidance provided by another Pennsylvania agency.

Relevant agencies:
DEP
PFBC
Department of Conservation and Natural Resources (DCNR)
Department of Agriculture (Ag)
Pennsylvania Game Commission (PGC)
Pennsylvania Historical and Museum Commission (PHMC)
Pennsylvania Department of Transportation (PennDOT)

Justification:
Timely implementation and processing of disparate policy and regulatory directives from multiple Pennsylvania agencies having jurisdiction over some portions of pipeline project development in the Commonwealth.

Actions that would be required to achieve recommendation:
Coordination between Commonwealth agencies to resolve conflicting regulations or practices that inhibit the pipeline development process and make compliance of all agency directives by the pipeline develop extremely difficult if not impossible.

Challenges to achieving recommendation:
Balancing the specific missions and regulatory mandates imposed on the various Pennsylvania agencies having jurisdiction over some portions of pipeline project development in the Commonwealth.

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Examples include:

1. <u>PGC vs DEP</u>
    a. Route tree clearing restrictions to accommodate bats during summer months forces construction to start in winter months, which makes complying with DEP Erosion and Sediment Control General Permit (ESCGP2) and Clean Streams regulations/rules more difficult.

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2. PennDOT and Townships
    a. If it is the case that PennDOT will not issue open cut permits for pipeline crossings operators are required to auger drill or Horizontal Directional Drilling (HDD) crossings which requires them to excavate significantly more earth, which makes compliance with DEP ESCGP2 regulations/rules more difficult
3. PennDOT/Township's/Landowner's vs. DEP
    a. Regarding temporary or permanent access roads, a more integrated and streamlined approval process between all agencies involved is necessary. Operators submit proposed access roads to the DEP as part of the ESCGP-2 process. Once approved, they then submit the proposed road location to PennDOT or the Township for their approval. If the road does not meet site distance requirements or if a township will not approve the driveway location, a DEP major modification is required.

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Siting and Routing Workgroup Recommendation #3

Create Statewide Technical Review Committee Within DEP for Multi-Region Pipeline Applications

Full recommendation:
Create a statewide technical review committee within at the DEP that would consolidate the review process of each pipeline application including all permits, cross County and DEP Region boundaries required to be reviewed and approved by the DEP on its own or under federal delegated authority. This recommendation is intended to improve communication between various DEP Regions and County Conservation Districts for pipeline projects that. A single point of contact by the DEP should be established for each pipeline project shortly after the application is filed with the DEP and communicated to the applicant. The assigned DEP contact's responsibilities would include general coordinating with the applicant, managing the review schedule within the DEP, leading all pre-application and related meetings with the applicant as well as internal DEP discussions, reviewing the application for completeness and technical comments for consistency, and coordinating reviews and approvals with appropriate DEP Regional and Conservation District staffs.

Relevant agencies:
DEP
County Conservation Districts

Justification:
Regional interpretations of DEP regulations and policy are not always consistent throughout the DEP Regions. These inconsistencies may result in additional and unnecessary meetings, excessive and potentially duplicative time and resources of DEP staff, the applicant and other stakeholders, as well as potentially inconsistent applications between Regions on the same pipeline project. This recommendation is intended to increase the likelihood of greater efficiency and coordination in the review of pipeline applications, and minimize unnecessary inconsistencies among the DEP regions when evaluating pipeline applications. The goal is to encourage the DEP to formulate and communicate a single message about pipeline projects to the applicant and the public generally.

Actions that would be required to achieve recommendation:
The establishment by the DEP of a policy (i) indicating that the DEP's Central Office should be contacted for all multi-Region pipeline projects and (ii) forming the statewide committee within the DEP as outlined in this recommendation

Challenges to achieving recommendation:
None anticipated once the aforesaid policy has been developed and implemented.

Additional supporting material:
See Resolve Conflicting Construction Restrictions and Considerations recommendation

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Issues to address (such as cost, environmental impacts):
No additional costs are anticipated at this time.

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Siting and Routing Workgroup Recommendation #4

Create a Taskforce of Affected Stakeholders to Study the Creation of a New Regulatory Entity, or Empower Existing Regulatory Entity to Review and Approve the Siting and Routing of Intrastate Gas Transmission Lines

Full recommendation:
An interdisciplinary group of state and local government, industry and stakeholder groups should be formed to define and analyze the full scope of cumulative impacts from pipeline development in Pennsylvania. In addition to defining the scope of cumulative impacts, this committee should identify metrics appropriate for measuring these impacts, and make recommendations for avoiding, reducing and mitigating cumulative impacts. The types of actions considered by this group should include, but aren't limited to new research projects, case studies, best management practices, landscape scale planning tools, mitigation programs, and policy recommendations.

Relevant agencies:
Office of the Governor
Pennsylvania General Assembly

Justification:
This recommendation would facilitate the development, construction and operation of intrastate transmission pipelines from the source of oil and gas supply into portions of Pennsylvania where gas and oil demand is high.

Actions that would be required to achieve recommendation:
Legislative authorization would be required.

Challenges to achieving recommendation:
Stakeholder consensus and scope of authority

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
N/A

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Siting and Routing Workgroup Recommendation #5

Create DEP Plans and Procedures Design Manual for Pipeline Construction

Full recommendation:
The DEP, with input from pipeline industry representatives and other stakeholders, should develop and publish a DEP Plans and Procedures Design Manual for Pipeline Construction (Manual). The Manual will establish standards and procedures for the filing and review of pipeline applications and obtaining the necessary permits and approvals, primarily before the DEP, and will additionally serve as a reference guide for the general public, Non-Government Organizations (NGOs) and stakeholders.

Relevant agencies:
DEP
U.S. Army Corps of Engineers (USACE)
Conservation Districts

Justification:
Pennsylvania is facing the largest infrastructure build out since the development of the Interstate Highway System. However, the lack of standards specific to the pipeline industry has led to inconsistent and varied regulatory policies and interpretations among the Conservation Districts, DEP Regions and individual reviewers within DEP Regions. The establishment of industry-specific guidance would allow pipeline applicants to understand all of the regulatory and policy requirements early in the process, reduce permit review comments by eliminating or significantly reducing individual and DEP Regional interpretations, reduce permit review time by establishing clear standards and clear expectations, and provide the general public a guide to understanding the pipeline permitting and application process. This recommendation is based in part on PennDOT's numerous (over 50) publications that guide the transportation industry in the Commonwealth. The publications include the establishment of engineering standards, environmental procedure and reporting requirements, as well as policy definitions. These documents provide a foundation to promote the efficient planning, development, permitting, construction, and maintenance of our transportation system. While the PennDOT documents are not applicable to pipelines, they provide a good example of what should be replicated by and within the DEP. The development of similar documents by the DEP in the form of a comprehensive Manual would eliminate (or at least substantially mitigate) interpretative variability, provide permit review consistency, and create clarity for both applicants and all other stakeholders.

Actions that would be required to achieve recommendation:
DEP, with industry and other stakeholder input, must develop the Manual timely and submit it for public and stakeholder review and comment before being finalized.

Challenges to achieving recommendation:
(i) Developing and issuing the Manual in a timely manner and (ii) acknowledging and accommodating legitimate regional differences in developing the standards in the Manual and

providing for appropriate DEP regional discretion in the pipeline application and permitting process any recommendation.

Additional supporting material:
http://www.dot.state.pa.us/public/PubsForms/Publications/PUB%2012.pdf

Issues to address (such as cost, environmental impacts):

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Siting and Routing Workgroup Recommendation #6

Create Third Party Consultant Staffing at DEP

Full recommendation:
To expedite the review and consideration of pipeline applications and permits by the DEP, the DEP should retain independent third-party consultants to assist it in its review of submitted pipeline permit applications. The Consultants will be retained and trained by the DEP and fully accountable to the DEP. Their responsibilities will include determining that pipeline and permit applications are administratively complete and technically sound.

Relevant agencies:
DEP

Justification:
Improve DEP's administrative efficiency and timely approval of pipeline applications and permits.

Actions that would be required to achieve recommendation:
DEP's willingness to hire, retain, train and utilize third party consultants, and developing the process for obtaining qualified third party consultants.

Challenges to achieving recommendation:
Finding a funding source and administering the program

Additional supporting material:

Issues to address (such as cost, environmental impacts):
Cost of the program.

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Siting and Routing Workgroup Recommendation #7

Expand PA1Call for All Classes of Pipelines

Full recommendation:
All pipeline owners and operators must participate in the PA1Call system to the extent practicable.

Relevant agencies:

Justification:
To improve safety and assist in siting and routing of all pipelines in Pennsylvania broader participation in the PA1Call system is necessary and in the public interest.

Actions that would be required to achieve recommendation:
Legislative action.

Challenges to achieving recommendation:
It may not be possible to have all existing pipelines in the Commonwealth located and submitted to the PA1Call system because of lack of documentation on pipeline locations, absence of cost-effective technology for locating older pipelines, etc. Accordingly, some accommodations may be necessary, although the goal should be to require all new pipelines installed in Pennsylvania to participate in PA1Call and as many of the legacy pipelines that can be reasonably, practicably and cost-effectively located.

Additional supporting material:

Issues to address (such as cost, environmental impacts):

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Siting and Routing Workgroup Recommendation #8

Pipeline Developers Should Engage with Private and Governmental Stakeholder Engagement and Educate Landowners

Full recommendation:
Pipeline developers should (i) continue their current practice of meeting early in the pipeline application process with permit agencies, counties, municipalities, impacted landowners and other stakeholders to share and exchange as much information as possible about the pipeline project, and (ii) develop and provide to impacted and adjacent landowners educational materials intended to inform them about the proposed pipeline project so they can make sound decisions about the project.

Relevant agencies:
DEP
PennDOT
DCNR
Ag

Justification:
The sooner pipeline developers, agencies, impacted municipalities and landowners, and other stakeholders meet and exchange relevant information about the proposed pipeline project, the easier it will be for everyone to understand their concerns and needs with respect to the pipeline project. Early planning will establish strong lines of communication between all types of stakeholders and create accountability if and when specific issues arise during the project. The more educated impacted landowners are about a pipeline project the easier it may be to engage in mutually productive discussions about the project's impacts, costs, safety, among other things.

Actions that would be required to achieve recommendation:
Creation and dissemination of materials to educate landowners.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

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Siting and Routing Workgroup Recommendation #9

Invest in Digital Infrastructure to Improve Data Availability

Full recommendation:
The Commonwealth, in partnership with academic, industry and community stakeholders should create or upgrade the tools and platforms necessary to facilitate transparent and streamlined data sharing to support comprehensive planning, project siting, and community participation in these processes. Subject to security and privacy constraints, agencies charged with maintaining data and information regarding ecological and cultural resources should make those data publically available to facilitate planning and siting. Similarly, industry and utilities should make data regarding existing and planned infrastructure publically available to support comprehensive planning and public participation.

Relevant agencies:
DCNR
PGC
DEP
PennDOT
Pennsylvania Fish and Boat Commission (PFBC)
Pennsylvania State University
Industry groups
Local county/municipal GIS departments
GIS Pros (County GIS Professionals)
Pennsylvania Mapping and Geographic Information Consortium (PA MAGIC)

Justification:
Information infrastructure and data sharing in Pennsylvania currently does not support a timely, efficient, or transparent planning or permitting processes, which reduces the effectiveness of our state agencies, impedes comprehensive planning and public participation, and does not allow for optimal siting decisions to reduce impacts to communities and the environment.

Actions that would be required to achieve recommendation:
Investments in training and outreach on using DCNR's updated Pennsylvania Natural Diversity Index (PNDI) permitting tool and newly created Conservation Explorer planning tool will speed the adoption and use of these tools. Exploring options for adding additional data to Conservation Explorer or creating a complementary spatial planning tool for DEP permitting will encourage coordination and integration among agencies on permitting requirements and improve the planning process. Pennsylvania State University's Spatial Data Clearinghouse (PASDA) could be used as a repository for additional downloadable datasets from these online planning tools to facilitate planning efforts by industry, as well as local government and stakeholders. Datasets on existing infrastructure should be created and maintained by the Commonwealth to improve planning and siting efforts. Making data from governmental agencies relevant to siting and planning, as well as data on existing infrastructure publically available through web-based planning tools and for download will improve planning on multiple levels, as well public

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participation and transparency. The coordination of this effort could occur through the Office of Administration's Geospatial Technologies Advisory Committee.

Challenges to achieving recommendation:

Additional supporting material:

Issues to address (such as cost, environmental impacts):

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Workforce and Economic Development Workgroup

Introduction

The Commonwealth must leverage our abundant natural gas resources to enhance workforce and economic development growth opportunities. Billions of dollars of investment in infrastructure will be a catalyst for growth in Pennsylvania. We should focus on expanding new and existing pipeline infrastructure to deliver natural gas to residential, commercial and industrial facilities, develop natural gas as a transportation fuel, expanding the use of natural gas in the electric generation industry, and supporting manufacturing and refinery projects in Pennsylvania that create good family sustaining jobs.

The state should continue to support and expand programs that will ensure that Pennsylvania has a trained workforce for the upstream, midstream, and downstream sectors of the natural gas industry. Moreover, the state should continue to support and expand financial incentives that will expand access to natural gas delivery systems, as well as needed conversion of existing energy infrastructure for use in Pennsylvania. As a key component to ensuring that Pennsylvania prospers, the state needs to develop an efficient and predictable permitting process that is coordinated through a single point of contact for pipeline projects that deliver natural gas to Pennsylvania projects and employ Pennsylvania residents.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #1

Commission Workforce Assessment and Economic Development Impact Study

Full recommendation:
Commission a statewide Workforce Assessment and Economic Development Impact study. The results would be used to develop workforce training initiatives through community colleges and technical schools.

Relevant agencies:
Department of Community and Economic Development (DCED)
Pennsylvania Department of Labor and Industry (L&I)

Justification:
A study is necessary to accurately quantify workforce development needs for the construction of pipeline infrastructure and the downstream manufacturing opportunities.

Actions that would be required to achieve recommendation:
This assessment could be funded jointly by DCED and L&I. Inventory of programs that already exist must be part of this study.

Challenges to achieving recommendation:
Funding availability; having accurate pipeline map; finding an unbiased organization to conduct study.

Additional supporting material:
The last workforce needs assessment was completed by the Marcellus Shale Education and Training Center in 2011. To look at the most up-to-date and current environment, we need an updated assessment of the workforce we currently have and where the gaps exist, including a look at the connected industries and jobs. This impact study should include feedback from current and potential employers. Additionally, this study should analyze whether implementing a standard uniform certification process for training workers would be beneficial.

Issues to address (such as cost, environmental impacts):
Cost of study, timeline for study, scope of the study.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #2

Enhance STEM Education

Full recommendation:
Enhance our position in natural gas with research and development, technology/innovation, and higher education partnerships by actively supporting and strengthening science, technology, engineering and math (STEM) education.

Relevant agencies:
DCED
L&I
Pennsylvania Department of Education (PDE)
Public Utility Commission (PUC)
Department of Environmental Protection (DEP)

Justification:
Necessary skill sets require math and science competency along with the hands on technical components. This education is required for processing, measurement jobs (midstream) and downstream manufacturing jobs – i.e. machinists, assemblers and fabricators who have to understand instructions and blueprints, use tools, machines and have the manual dexterity to assemble pieces and goods on the manufacturing line to complete a finished product. Many of these jobs will not require a college education but employees will need technical competencies that will be math-based. The workforce pipeline program should expand in the future with special emphasis given to those programs aimed at preparing students for science, engineering, and technical positions commanding higher wages.

Actions that would be required to achieve recommendation:
Meeting between PDE and other relevant agencies to review current curricula and discuss necessary elements for inclusion in curriculum. Develop a customized STEM education curriculum for high school and earlier years to prepare the state's youth for both the midstream and downstream jobs. This curriculum would be coupled with technical education and hands on learning skills. Include groups such as Junior Achievement in this discussion.

Challenges to achieving recommendation:
Existing STEM curriculum and inability to agree on best curriculum to use. Funding remains a challenge.

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
Potential costs involved.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #3

Promote Apprenticeship and On-the-Job Training

Full recommendation:
Promote apprenticeship and on-the-job training with employers.

Relevant agencies:
PDE
DCED
DEP
PUC
L&I

Justification:
Individuals with skills and job experience are in high demand. Specialized training which is gained through an apprenticeship or on-the-job training provides skilled individuals for many jobs. Apprenticeship programs such as the five-year "State Certified Apprenticeship Program" have been successful and should be used as a model.

Actions that would be required to achieve recommendation:
Overview current training programs provided, including on-site visits to training facilities. Provide services as well as incentives for employers to hire apprentices, provide internships and summer jobs for students. [Get additional input from L&I?]

Challenges to achieving recommendation:
None identified.

Additional supporting material:
The State Certified Apprenticeship Program is a secure way to ensure the public that midstream and downstream gas industry projects are conducted safely and with the highest quality of expertise. All first year apprentices undergo Occupational Safety & Health Administration (OSHA) 10 training. In the Philadelphia region, they have eight hours of Process Safety Management Training tailored to refineries, chemical plants, pharmaceutical and power plants. Apprentices are subjected to random alcohol and drug testing over the course of the program. Apprentices have to complete over 800 hours of classroom study and over 8,000 hours of field training. On the job training is done under the direct supervision of a Journeyman to ensure the apprentice is completing a task safely and with the highest standard of excellence. This helps to ensure that the knowledge and experience of a journeyman is passed on to the next generation. Apprentices graduate with numerous certifications such as welding from the National Certified Pipeline Welding Bureau, rigging and handling from the National Commission for Certification of Crane Operators and fusion certifications from CFC, to name just a few. All of the information on the apprentice is entered and traced at a data center provided by the program they are enrolled in. The commitment to training is unprecedented in this industry and is done at no

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cost to the state or federal government. The training programs are completely funded by their memberships.

Issues to address (such as cost, environmental impacts):
None identified.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #4

Attract Military Veterans to the Energy Workforce

Full recommendation:
Encourage the integration of military veterans into the natural gas industry workforce.

Relevant agencies:
L&I

Justification:
Pennsylvania has one of the largest veteran populations in the country. Returning veterans often have skills that are sought after by employers in the energy value chain, and many are used to working in the harsh outdoor conditions that E&P and midstream work can require.

Actions that would be required to achieve recommendation:
Consider existing models (see additional supporting material below).

Challenges to achieving recommendation:
Helping veterans translate their skills and helping employers recognize the opportunity can be a challenge.

Additional supporting material:
The Appalachian Partnership Initiative (Chevron, Claude Worthington Benedum Foundation, Allegheny Conference on Community Development) and the Colcom Foundation have begun a pilot program in Southwest PA, Service To Opportunity (STO) (servicetoopportunity.org). STO was created with a powerful matching database that helps veterans match their skills and interests directly to these in-demand jobs and employers. STO has been recognized by the White House, the U.S. Department of Defense, the U.S. Department of Energy, the U.S. Department of Veterans Affairs and the U.S. Department of Labor as an innovative and promising approach to veteran hiring in the Pittsburgh region that could become a model for other places around the country.

Issues to address (such as cost, environmental impacts):
None identified.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #5

Conduct a State Employee Workforce Audit to Identify Training and Other Needs of Pertinent State Agencies

Full recommendation:
Initiate an analysis of the current Commonwealth workforce to identify training and workforce needs for pertinent state agencies.

Relevant agencies:
L&I
Office of Administration (OA)
DEP

Justification:
Workforce and professional development at state agencies, such as DEP, must be addressed to keep and retain state employees. The state must invest in its own workforce in terms of professional development and competitive pay/benefits. An aging workforce and pending retirements will further stress an already weakened staff component for regulatory agencies. For instance, DEP is facing a staffing shortage and loss of employees to the private sector (based on more attractive compensation and other factors).

Actions that would be required to achieve recommendation:
Audit would need to be conducted. Leadership from OA and the Governor's Office.

Challenges to achieving recommendation:
Funding

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
Budgetary cuts and costs associated with correcting pay inequities.

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Workgroup and Economic Development Workgroup

Workforce Development Recommendation #6

Enhance Workforce Training

Full recommendation:
Use ShaleNet as a model for workforce training for the pipeline industry. Connect career and technical education and community colleges with employers to develop, implement, and sustain a comprehensive, proactive, results-oriented workforce pipeline program that would lead to a highly qualified pool of local workers who could be considered for hiring into all job classes and salary levels.

Relevant agencies:
L&I
DCED

Justification:
ShaleNET is a consortium of community colleges, workforce investment boards and industry representatives designed to train local workers to fill local natural gas and oil industry jobs. Through 2014, ShaleNET Phase I trained 5,500 workers, of which 3,400 are employed.

Actions that would be required to achieve recommendation:
Clearly define career pathways with ongoing participation from employers across the industries to ensure a talent pool is in place throughout the Commonwealth and also includes mechanisms to retrain/upskill the workforce as the industries grow and skills needs change. Target a portion of Industry Partnership and WEDnet funding for direct partnerships with employers and CTE/community colleges to develop the workforce skills in related occupations.

Challenges to achieving recommendation:
None identified.

Additional supporting material:
Started in 2010, ShaleNET initially focused (via a $4.9M U.S. Department of Labor grant) on the Marcellus Shale footprint, encompassing five community colleges (including Westmoreland County Community College and Penn Technical College), workforce investment boards (WIBs) representing 69 counties across four states (PA, WV, OH, NY), and the Pennsylvania Independent Oil and Gas Association (PIOGA). ShaleNET developed and implemented a standardized, industry-endorsed curriculum to train workers for six priority drilling-site jobs. ShaleNET Phase II began in 2012 with a $14.9 grant U.S. Department of Labor grant to expand ShaleNET by expanding its scope of training through creation of certificate and associate degree programs particularly relevant to midstream and downstream components of the natural gas value chain – mechatronics, electronics, production technology, and petroleum technology. The petroleum technology associates degree curriculum includes an optional "pipeline technician" specialization. It also expanded the geographic scope of the program to include Stark State College (Ohio), Pierpont Community and Technical College (West Virginia) and Navarro

College (Texas). Since ShaleNET began training students two years ago, 960 students have received credentials, with 185 placed in jobs.

Issues to address (such as cost, environmental impacts):
None identified.

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Workgroup and Economic Development Workgroup

Economic Development Recommendation #1

Develop a Pipeline Map

Full recommendation:
Designate one state agency to lead the development of a detailed pipeline map showing the location of existing and proposed infrastructure in the Commonwealth.

Relevant agencies:
DCED
DEP
PUC
Pennsylvania Department of Transportation (PennDOT)
Department of Conservation and Natural Resources (DCNR)
Department of Agriculture (Ag)

Justification:
A pipeline map would help significantly in determining suitable economic development locations, as well as workforce needs related to the pipeline/natural gas industry. Accurate, precise pipelines and their attributes mapped to the distribution system level would be useful to support planning for line extensions and new economic development projects. In the interest of domestic security, the agency undertaking such effort shall make a determination (after consultation with all affected stakeholders and parties) regarding the public disclosure of mapped assets.

Actions that would be required to achieve recommendation:
Significant, continuing coordination with all levels of gas pipeline companies (gathering, midstream, distribution) would be required. Non-disclosure agreements for map and data use may be required.

Challenges to achieving recommendation:
Ability to access and use maps and data presently considered to be confidential. Assets are mapped by different companies, state agencies, and county and local planning entities. There is not one comprehensive source of data, so information will need to be collected from numerous sources and verified before final mapping.

Additional supporting material:
None.

Issues to address (such as cost, environmental impacts):
There have been numerous concerns expressed about the security of such a map, considering that it is a visual representation of natural gas infrastructure in our Commonwealth. These concerns are valid and the Commonwealth must develop a policy regarding the public disclosure of such information before initiating such an effort.

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Workgroup and Economic Development Workgroup

Economic Development Recommendation #2

Coordinate Project Management for Projects Using Natural Gas in PA

Full recommendation:
Pennsylvania desires to see natural gas pipeline and downstream projects developed in our Commonwealth that rely on natural gas use in Pennsylvania, for the benefit of Pennsylvania residents and companies. In order to maximize opportunities for projects that have a direct impact on workforce and economic development impact in Pennsylvania, we propose the following:

- Designate "high priority" pipeline infrastructure projects as those pipeline infrastructure projects that include:
    - The delivery and/or supply of natural gas to Pennsylvania businesses and residents for use; and
    - Employ a certain amount of Pennsylvanians as part of the development, construction, or operation. High priority pipeline projects would receive coordinated project management through a single point of contact for permitting and funding (if applicable) as described below.
- Designate a single point of contact - a Statewide Pipeline Project Coordinator - for "high priority" pipeline infrastructure projects. The statewide pipeline project coordinator will provide a streamlined and cohesive communication process with all federal and state agencies involved in the development, authorization or funding of "high priority" pipeline infrastructure projects. DCED has the existing framework and resources in house to coordinate projects involving multiple agencies across the Commonwealth.
- Establish an efficient permitting process that is led by the Statewide Pipeline Project Coordinator. With any economic development project, time is money. The longer it takes to complete a project, the higher the cost. A major factor associated with imposing significant delays and associated costs of pipeline projects is compliance with environmental regulations. In the case of pipelines, there is a federal-state nexus and multi-agency involvement that can make the permitting process difficult to navigate. Led by the statewide pipeline project coordinator, agencies that play a role in pipeline infrastructure projects should work in collaboration with industry and non-governmental organizations to develop a transparent, predictable and efficient permitting process to support a responsible infrastructure build-out.

Relevant agencies:
DCED
DEP
L&I
Ag
Pennsylvania Fish & Boat Commission (PFBC)
Pennsylvania Game Commission (PGC)
Pennsylvania Historical Museum Commission (PHMC)
Federal Agencies as appropriate

Justification:
Based on the development of pipeline infrastructure projects to date, we believe it is critical to provide an incentive for pipeline companies to include Pennsylvania-based projects in their development process. The benefit of having a single point of contact within the Commonwealth to coordinate the efforts of pipeline projects that deliver gas to Pennsylvania businesses and residents is a significant and select opportunity to demonstrate the Commonwealth's commitment to projects that provide workforce and economic development benefits here in PA.

Actions that would be required to achieve recommendation:
The Commonwealth would need to fully define "high-priority" projects and select a single point of contact/coordinator within DCED. Each agency of commission involved in pipeline projects would also need to select a single point of contact/coordinator to work with the Statewide Pipeline Project Coordinator.

Challenges to achieving recommendation:
None identified.

Additional supporting material:
None.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #3

Create Last Mile Funding

Full recommendation:
Help fund "last mile" natural gas distribution lines to provide access to natural gas to Pennsylvania's manufacturing sector.

Relevant agencies:
DCED

Justification:
This is proposed new funding provided as part of the Governor's budget proposal.

Actions that would be required to achieve recommendation:
Budget passage hopefully with this funding included.

Challenges to achieving recommendation:
Legislative action

Additional supporting material:
None.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #4

Expand Distribution System Improvement Charge (DSIC) to Cover Pipeline Payback Period Extension, Advertising Costs

Full recommendation:
Provide a financial mechanism that encourages pipeline extensions for companies/residents through the expansion of the Distribution System Improvement Charge (DSIC) to allow for new projects to qualify.

Establish longer payback periods for new commercial users of natural gas provided by the natural gas distribution companies.

Allow companies to build in advertising costs which assist in messaging of natural gas opportunities to citizens of PA.

Relevant agencies:
PUC

Justification:
N/A

Actions that would be required to achieve recommendation:
Amend Section 1353(1) of the Public Utility Code to provide that natural gas distribution company line expansion projects will be eligible for the DSIC.

Challenges to achieving recommendation:
Legislative action required.

Additional supporting material:
N/A

Issues to address (such as cost, environmental impacts):
N/A

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #5

Encourage Natural Gas Use in Ports

Full recommendation:
Encourage using natural gas at ports in PA.

Relevant agencies:
DCED
PennDOT

Justification:
Pennsylvania has three significant ports: Philadelphia, Pittsburgh, and Erie. In addition, Philadelphia Shipyard, for example, is a national strategic asset and substantial job creator/preserver. Pennsylvania is the second largest producer of natural gas in the U.S. at 4Tcf (doubled production since 2012). Pennsylvania is also rich in Natural Gas (NG) By-products (natural gas liquids (NGL) and liquefied petroleum gas (LPG). Environmental benefits are significant when utilizing natural gas instead of diesel as a transportation fuel.

Actions that would be required to achieve recommendation:
Need for spur lines or laterals to feed ports in Pennsylvania (e.g., Philadelphia Regional Port Authority properties, Port of Pittsburgh) with NG and/or utilize liquefied natural gas/compressed natural gas (LNG/CNG) storage facilities that can feed the demand. Meet with private sector stakeholders and take note of other ports around the country. For instance, the Port Authority of New York and New Jersey is beginning natural gas as a marine fuel roundtables in November 2015; see Ports of Long Beach/Los Angeles, Tacoma, Washington, and Jacksonville, Florida.

Challenges to achieving recommendation:
Time is of the essence to develop a plan that suits the ports and marine infrastructure. It is essential to bring in ideas and perhaps partner with the private sector and non-profits. Coordinating activities of state, Federal, ad private sector stakeholders.

Additional supporting material:

- Natural gas as a marine fuel is becoming a reality in ocean shipping. Bunker ports for filling-up on LNG for ocean going container ships are being created globally. In the U.S. the ports of Jacksonville, FL and Tacoma, WA are in the planning and development stages for ships servicing the Pacific Northwest – Alaska trade and the Southeast – Puerto Rico Trade.
- Evergas is currently constructing a series of at least eight purpose built Multigas carriers in China, intended to trade ethane from Philadelphia, PA (Marcus Hook) and Europe. The Evergas ships' main engines will be dual fuel design meaning they can be powered by diesel fuel or natural gas (or NG byproducts such as ethane).
- Evergas has proved-up new break-through technology with Wartsila and will fuel their ships on ethane (the same ethane they carry as cargo). Evergas is now getting the engines

ready to operate on ethane. The ships will still be able to operate on LNG but because the ports in the U.S. are not set up (supply-stations) then ethane is the better choice (for now). Should the vessels operate on NG they will need a fueling supply based in and around the port of Philadelphia to either service directly or through a bunker barge-type system - all with great PA job creating opportunities.

- The new multi-gas ships are able to transport petrochemical gases, including LPG/propane and LNG. The private sector companies attached to this endeavor are: Evergas, Watsila, Ineos Europe and Range Resources.
- Evergas carriers have already been loading propane out of Marcus Hook and Houston. The first loading of propane in Marcus Hook was on September 5, 2015 (this year last month) -therefore this project is already creating and sustaining jobs in the supply chain for Pennsylvanians.
- Opportunities also exist for switching from diesel to natural gas for transportation, cargo handling machinery and structures at the three ports in Pennsylvania.
- Utilization of NG as marine fuel should be explored as part of the ongoing Philly Southport expansion project(s).
- There exists a Pittsburgh Marine Corridor Natural Gas Feasibility Assessment which examined whether realistic opportunities exist for converting inland waterways vessels from diesel to natural gas propulsion. This Assessment, conducted through collaboration between Life Cycle Engineering, 3 Rivers Clean Energy, Marshall University Rahall Transportation Institute, and the Shearer Group, LLC, should be continued.
- The Port of Pittsburgh should continue to assess requirements for potential fueling sites for the conversion of vessels to LNG. According to U.S. Army Corps of Engineers, Pittsburgh is the third busiest inland port in the United States. About 34 million tons of cargo move through the Port of Pittsburg each year. Approximately 45,000 jobs are dependent upon this inland waterway transportation system.
- The Pittsburgh Region Clean Cities non-profit organization, the Richard King Mellon Foundation, the Benedum Foundation, and other industry companies have expressed interest in the recent past on such maritime related fuel initiatives.
- Using natural gas instead of diesel as a shipboard fuel reduces sulphur oxide (SOx) emissions by 100 percent; particulate matter (PM) by 91 percent; nitrogen oxide (NOx) by 90 percent; and carbon dioxide (CO2) by 35 percent.
- Shippers (i.e., importers/retailers) are increasingly looking to reduce their carbon footprint and asking ports globally to consider ideas on making their ports “greener”.
- Pennsylvania, specifically the Philadelphia region is strategically located for international commerce—it is capable of importing and exporting cargo to/from Europe, South America, and Africa; and Asia through the Suez Canal and importantly next year through the expanded Panama Canal.

Philadelphia Shipyard

- Philadelphia shipyard employs thousands of workers that earn family living wages and benefits.
- Philadelphia’s shipyard is arguably the best pure commercial large shipbuilder in the Unites States.
- Kinder Morgan Inc. announced in August 2015 that it will buy four product tankers in design and construction at Aker Philadelphia Shipyard for $568 million. These ships will

contain **dual fuel** design main engines capable of operating on natural gas. Crowley Maritime is also building four LNG-ready (**dual fuel**) product tankers at the Aker Philadelphia shipyard. On October 1, 2015, Philadelphia shipyard began production activities on two "Aloha Class" containerships that it is building for Matson Navigation Company. The vessels will be built with dual fuel engines that can be adapted to use LNG.

International Air Quality Regulations for Ships

- Shipowners are considering LNG as a marine fuel for the international trade in order to comply with international regulations– and that depends largely on the availability and supply of natural gas at seaports.
- United Arab Shipping Company is constructing 17 newbuilds that are LNG-fuel ready. The first of the ships, the SAJIR was christened in November 2014 and is the industry's first ever LNG-ready ultra large container ship. This 14,000-TEU vessel will be joined by ten 15,000 TEU ships and six 18,000-TEU (plus) vessels to be delivered by mid-2016. Mitsui O.S.K. Lines is constructing 6 LNG-fuel ready container ships.
- (MARPOL Annex VI Emission Control Areas (ECAs)). MARPOL Annex VI is an agreement covering pollution from ships and developed through the International Maritime Organization (IMO), a United Nations agency, which has resulted in the establishment of emission control areas. Effective January 1, 2015, the maximum SOx content in bunker fuel permitted inside ECA zones of the US, North Europe and the Baltic Sea was reduced from 1 percent to 0.1 percent. For waters outside the ECAs, effective 2020, sulfur content in marine fuels will be cut to 0.5 percent. There will be, however, a feasibility review on the practicalities of reaching the 0.5 percent benchmark, scheduled for completion no later than 2018. Based on this review, a group of experts from the IMO's Marine Environment Protection Committee will decide whether it is feasible for ships to comply with the 2020 date, or if the emissions standard should be deferred until January 1, 2025.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #6

Develop Targeted Investment, Business Attraction Effects and Regional Energy Hubs

Full recommendation:
Develop a comprehensive statewide strategy to identify and prioritize suitable "targeted areas" for extension or expansion of new natural gas services to support existing and/or new business growth. Part of this statewide strategy will include encouraging and promoting regional energy hubs in order to grow Pennsylvania's chemical manufacturing base, LNG production opportunities, and other downstream end uses of our natural gas.

Relevant agencies:
DCED

Justification:
The Commonwealth can be a leader in developing strong industrial growth around our shale gas resource by assisting with identifying and prioritizing the most suitable targeted areas for natural gas expansion and aligning potential funding sources with projects as appropriate. This will maximize Pennsylvania job creation and economic development potential.

Actions that would be required to achieve recommendation:
In order to better understand where Pennsylvania can best harness the use of natural gas, pipeline assets need to be mapped (see recommendation Natural Gas Municipal Authorities). State investments will be focused on these areas and to ancillary projects that keep/use natural gas and natural gas liquids in Pennsylvania. Pennsylvania also needs to initiate an active recruitment strategy for bringing new companies to PA by focusing on attracting companies that are large users of energy and/or natural gas in their manufacturing processes, particularly those within 50 miles of cracker plants.

Challenges to achieving recommendation:
Funding

Additional supporting material:
The potential investment in energy hubs is significant and represents billions of dollars of private sector investment and the creation of thousands of jobs. In Philadelphia alone, there are numerous projects in development related to a "Philly Energy Hub" that, if all developed, would result in $10 billion in investment in the region. This is significant investment in site-specific projects in and around the port of Philadelphia.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #7

Collaborate to Promote Downstream Shale Manufacturing Opportunity

Full recommendation:
Maximize the economic development opportunity of shale gas by encouraging the expansion of existing companies and the attraction of new facilities that are large consumers of natural gas for energy and/or use natural gas liquids and their derivatives as raw materials in their manufacturing processes, including working in multi-state, cross-border collaborations where appropriate.

Relevant agencies:
DCED
L&I
DEP
PennDOT

Justification:
The relevant regional energy economies centered around Philadelphia and Pittsburgh – such as the location of companies in the supply chain, as well as the pool of available workers – cross over state lines. Coordination and collaboration with economic development stakeholders, workforce development agencies, etc., from neighboring states can help maximize economic development opportunities.

Actions that would be required to achieve recommendation:
Collaborative efforts are already underway in this area. Governor Wolf signed a Regional Cooperation Agreement with WV and Ohio on this issue in October. The Greater Philadelphia Chamber of Commerce, which covers 11 counties in three states (PA, NJ, DE), has created the Greater Philadelphia Energy Action Team to establish an "Energy Hub" in the Philadelphia region.

Challenges to achieving recommendation:
Developing consensus around an action-oriented agenda.

Additional supporting material:
The PA-OH-WV Regional Cooperation Agreement identifies four potential areas of collaboration: Marketing/Promotion, Workforce, Infrastructure, and Research & Innovation, intended to bring together research institutions in the three states in a focused research collaboration on new natural gas and NGL uses and opportunities.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #8

Encourage Virtual Pipeline (Trucking) Delivery Systems

Full recommendation:
Encourage implementation of natural gas "virtual pipeline" (trucking) delivery systems that will facilitate access to businesses and residents who cannot be connected in a cost-effective manner to existing hardline distribution systems.

Relevant agencies:
DCED

Justification:
Virtual pipelines can provide natural gas to users that are too far from existing "hardline" gas delivery systems for extensions to be economically feasible. Delivery by truck can be performed within a wide radius of a compression station located on an existing large-capacity transmission line. In some cases, the virtual pipeline solution may prove to be a temporary solution until such time as connection to a hardline system becomes more justifiable.

Actions that would be required to achieve recommendation:
Creating modest grant or loan programs at relevant state agencies; providing tax incentives for companies implementing virtual pipeline solutions.

Challenges to achieving recommendation:
Funding.

Additional supporting material:
None.

Issues to address (such as cost, environmental impacts):
Higher congestion on roadways; possible locally-restrictive permitting processes.

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Workgroup and Economic Development Workgroup

Economic Development Recommendation #9

Allow Creation of Natural Gas Municipal Authorities

Full recommendation:
Explore the need to amend the Municipal Authorities Act to allow establishment of natural gas municipal authorities.

Relevant agencies:
DCED
PUC

Justification:
At present, the formation of new municipal authorities to provide natural gas services appears to be significantly restricted or prohibited by language included in the PA Municipal Authorities Act (Title 53 Pa.C.S. §5607(a) and (b)(2)). The ability to establish such authorities may be attractive in some locations as a means of supporting funding to provide natural gas service in areas not planned for by natural gas distribution companies. As compared to other similar options, natural gas municipal authorities could provide advantages for direct control of all governance aspects, ability to issue tax-exempt bonds, eminent domain power, and clearer exemption from PUC regulation.

Actions that would be required to achieve recommendation:
Potentially amending the PA Municipal Authorities Act.

Challenges to achieving recommendation:
Would require legislative change; possible objections from the natural gas distribution companies.

Additional supporting material:
See PA Municipal Authorities Act (Title 53 Pa.C.S. §5607(a) and (b)(2)).

Issues to address (such as cost, environmental impacts):
None identified.

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Workgroup and Economic Development Workgroup

Economic Development Recommendation #10

Compile Funding and Resource Guidebook

Full recommendation:
Compile a statewide resource and educational guide of funding programs and permitting process, including the state agencies involved. This guide should include success stories and recommendations that will provide support to entities seeking to procure new natural gas services.

Relevant agencies:
DCED
PUC
DEP
PennDOT

Justification:
Companies should have a clear picture of who they need to work with, the process involved, the funding options available, etc.

Actions that would be required to achieve recommendation:
Compilation of this document. Access to this information should be made available through state website.

Challenges to achieving recommendation:
None identified.

Additional supporting material:
None identified.

Issues to address (such as cost, environmental impacts):
None identified.

Draft

Workgroup and Economic Development Workgroup

Economic Development Recommendation #11

Support Natural Gas for Compliance with Pennsylvania's Clean Power Plan (CPP)

Full recommendation:
Pennsylvania's status as a major energy-producing state has grown over the past two years. Pennsylvania is now the third-largest energy-producing state in the U.S. (on a BTU basis), behind Texas and Wyoming. This change is almost entirely attributable to the growth in natural gas production. According to the Pennsylvania Climate Impacts Assessment Update (May 2015), opportunities exist to reduce carbon emissions, particularly in the areas of low-emissions power generation. According to EPA, the increased use of natural gas for power generation in Pennsylvania, relative to coal and petroleum, has led to a decline in the greenhouse-gas footprint of Pennsylvania's electric generation sector.

Given the economic position that Pennsylvania holds in its global reserve of natural gas, and the opportunities to reduce carbon emissions in the power sector by shifting from coal to natural gas and reducing industrial demand through combined heat and power to comply with the CPP, we strongly recommend consideration of these specific opportunities in PA's solution to reduce carbon.

Relevant agencies:
Governor's Policy Office
DEP
DCED

Justification:
Maintaining PA's economic position as an energy producing state and net energy exporter.

Actions that would be required to achieve recommendation:
Consideration of natural gas fired power plants and combined heat and power as compliance options in the CPP.

Challenges to achieving recommendation:
Balancing natural gas and renewable energy production in achieving compliance with the CPP.

Additional supporting material:
See diagram included below.

On August 3, 2015, the United States Environmental Protection Agency (EPA) adopted Carbon Pollution Standards for Existing Power Plants, known as the CPP. Adopted pursuant to EPA's authority under the Clean Air Act, the Clean Power Plan establishes unique emission rate goals and mass equivalents for each state. It is projected to reduce carbon emissions from the power sector 32 percent from 2005 levels by 2030. Individual state targets are based on national uniform "emission performance rate" standards (pounds of CO2 per MWh) and each state's

unique generation mix. States have wide latitude in designing their strategies to reduce emissions. In most cases, they will rely on a variety of measures. Major options include substituting natural gas for coal; improving energy efficiency; and increasing reliance on renewable energy.

Issues to address (such as cost, environmental impacts):
None identified.

Workgroup and Economic Development Workgroup

For Other Workgroups Recommendations #1

Assess Requirement of Consulting Services for Permitting

Full recommendation:
Analyze cost/benefit of requiring outside consultant services for PA General Permit-5 (stream crossing) permit.

Relevant agencies:
DEP
OA

Justification:
Pennsylvania changed its General Permit-5 (stream crossing) permit process to require specialized outside consulting services to prepare the permit applications, rather than through in-house staff. This change has required additional costs and additional planning time on the part of the company with no additional benefit to environmental restoration. This change should be analyzed to see if there is sufficient additional benefit to justify the additional cost and time to the permit applicant.

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Workgroup and Economic Development Workgroup

For Other Workgroups Recommendations #2

Ensure Pipeline Permit Consistency

Full recommendation:
Consistency between permitting of transmission and distribution lines should be addressed. Transmission pipelines can be exempted from submitting a site-specific erosion & sedimentation (E&S) plan if they disturb less than five acres during construction. Distribution pipelines do not have access to the same exemption and must prepare E&S plans if greater than one acre is disturbed. (Exempt projects are still subject to other permit conditions which ensure compliance and environmental protection.)

Relevant agencies:
DEP

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Workgroup and Economic Development Workgroup

For Other Workgroups Recommendations #3

Reform Application of the Pennsylvania Natural Diversity Index (PNDI)

Full recommendation:
PNDI application should be reformed to:

- Allow access on a confidential basis to developers to understand species patterns and sensitive habitats before designing their projects in order to better protect the habitats/species as well as speed the permitting process.

- Bringing consistency to how threatened and endangered species are identified in Pennsylvania by applying a single process for designation to DCNR, the Pennsylvania Game Commission (PGC), and the Pennsylvania Fish & Boat Commission (PFBC), a designation process similar to the one used by the U.S. Fish & Wildlife Service.

Relevant agencies:
DCNR
DEP
PFBC
PGC

Justification:
Under current law, the information on sensitive habitats in PNDI is withheld from pipeline companies (and other developers) until construction plans are submitted. Rather than allowing the design of projects to avoid sensitive areas in the first place, the application of PNDI requires companies to *redesign* projects, often with less-than-complete information which again can delay approval.

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APPENDICES

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ACRONYMS

ABACT	Antidegradation Best Available Combination of Technologies
ACHP	Advisory Council for Historical Preservation
Ag	Pennsylvania Department of Agriculture
ANPRM	Advance Notice of Proposed Rulemaking
APE	Area of Potential Effects
API	American Petroleum Institute
ARRI	Appalachian Regional Reforestation Initiative
AVO	Audible, Visual and Olfactory
BAMR	DEP, Bureau of Abandoned Mine Reclamation
BMPs	Best Management Practices
BOF	DCNR, Bureau of Forestry
BTGS	DCNR, Bureau of Topographic and Geological Survey
CBR	Crude Oil by Rail
CCAP	County Commissioners Association of Pennsylvania
CESSWI	Certified Erosion Sediment & Stormwater Inspector
CNG	Compressed Natural Gas
CO2	Carbon Dioxide
COGENT	Connection for Oil, Gas and Environment in the Northern Tier
CPESC	Certified Professional in Erosion and Sediment Control
CPSWQ	Certified Professional in Stormwater Quality
CREP	Conservation Reserve Enhancement Program
CRGIS	Cultural Resources GIS
CSC	Civil Service Commission
CWA	Clean Water Act
DA	Department of the Army
DCA	Division of Compliance Assistance
DCED	Pennsylvania Department of Community & Economic Development
DCNR	Pennsylvania Department of Conservation and Natural Resources
DEP	Pennsylvania Department of Environmental Protection
DOE	Unites States Department of Energy
DRBC	Delaware River Basin Commission
DSIC	Distribution System Improvement Charge
ECAs	Emission Control Areas
E&S	Erosion and Sedimentation
E&SPC	Erosion and Sediment Pollution Control
EHB	Environmental Hearing Board
EIA	U.S. Energy Information Administration
EIS	Environmental Impact Study
EMA	Emergency Management Agency
EOZ	Energy Opportunity Zone
EPA	United States Environmental Protection Agency
EPCAMR	Eastern Pennsylvania Coalition for Abandoned Mine Reclamation
ERPs	Emergency Response Plans
ESCGP2	Erosion and Sediment Control General Permit

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EV	Exceptional Value
FAQ	Frequent Asked Questions
FERC	Federal Energy Regulatory Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLIR	Forward Looking Infrared
FRCOP	First Responder Community of Practice
GAO	Federal Government Accounting Office
GAT	Governor's Action Team
GIS	Geographic Information System
GPTC	Gas Piping Technology Committee
HDD	Horizontal Directional Drilling
HQ	Hazard Quotient
IAP	Incident Action Plans
ILF	In Lieu Fee
ILI	In Line Inspection
IMO	International Maritime Organization
IMP	Integrity Management Program
IRT	Interagency Review Team
IVM	Integrated Vegetation Management
JPA	Joint Permit Application
KOZ	Keystone Opportunity Zone
L&I	Pennsylvania Labor and Industry
LDAR	Leak Detection and Repair
LEAP	Leaders in Energy and Preservation
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MCWA	Mehoopany Creek Watershed Association
MOUs	Memoranda of Understanding
MS4	Municipal Separate Storm Sewer Systems
MSC	Marcellus Shale Coalition
NASFM	National Association of State Fire Marshalls
NEPIRC	Northeastern Pennsylvania Industrial Resource Center
NFR	Non-Federally Recognized
NG	Natural Gas
NGL	Natural Gas Liquids
NGOs	Non-Governmental Organizations
NOI	Notice of Intent
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register for Historic Places
NPRM	Notice of Proposed Rulemaking
NRCS	National Resources Conservation Services
OA	Pennsylvania Office of Administration
OGC	Open Geospatial Consortium
OMB	Office of Management and Budget

Draft

ONAA	Office of Native American Affairs
OPS	Office of Pipeline Safety
OSFC	Office of the State Fire Commissioner
OSHA	Occupational Safety & Health Administration
PA1Call	PA1Call System
PACT	Permit Application Consultation Tool
PA APA	Pennsylvania Chapter – American Planning Association
PACD	Pennsylvania Association of Conservation Districts
PAPA	Pipeline Association for Public Awareness
PASDA	Pennsylvania State University Spatial Data
PA SHPO	Pennsylvania State Historic Preservation Office
PCH	Pennsylvania Certified Horticulturalist
PCSM	Post-Construction Stormwater Management
PDE	Pennsylvania Department of Education
PDG	Permit Decision Guarantee
PEMA	Pennsylvania Emergency Management Agency
PennDOT	Pennsylvania Department of Transportation
PE	Professional Engineer
PFBC	Pennsylvania Fish and Boat Commission
PG	Professional Geologist
PGA	Pennsylvania Game Commission
PGC	Pennsylvania Game Commission
PHMC	Pennsylvania Historical and Museum Commission
PHMSA	Pipeline and Hazardous Material Safety Administration
PIESCES	Pennsylvania Integrated Ecological Services Enhancement and Support
PIOGA	Pennsylvania Independent Oil and Gas Association
PIPA	Pipelines and Informed Planning Alliance
PITF	Pipeline Infrastructure Task Force
PM	Particulate Matter
PNDI	Pennsylvania Natural Diversity Index
PPMS	Pennsylvania Pipeline Mapping System
PPP	Public Pipeline Portal
PSA	Public Service Announcement
PSAPS	Public Safety Answering Point
PSATS	Pennsylvania State Association of Township Supervisors
PSP	Pennsylvania State Police
PUC	Public Utility Commission
QA	Quality Assurance
QC	Quality Control
ROD	Record of Decision
ROW	Right of Way
RTKL	Right to Know Law
RTP	Request for Proposal
SCC	State Conservation Commission
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SFA	State Fire Academy

Draft

SLC	Sustainable Landscape Certificate
SOP	Standard Operating Procedure
SO_x	Sulphur Oxide
S-R	Susquehanna - Roseland
SRBC	Susquehanna River Basin Commission
STEM	Science, Technology, Engineering and Math
STO	Service to Opportunity
STPs	Shovel Test Pits
SWM	Stormwater Management Plan
TMDL	Total Maximum Daily Loads
USACE	United States Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USF	U.S. Foresty
USFWS	U.S. Fish and Wildlife Services
UULPL	Underground Utility Line Protection Law
VSM	Value Stream Mapping

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ENDNOTES

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[iv] *The Case for Smart Planning in Pipeline Infrastructure Development,* presentation by John Quigley, Pennsylvania Department of Environmental Protection Secretary, July 22, 2015. http://files.dep.state.pa.us/ProgramIntegration/PITF/Meetings/7-22-15/Smart%20Planning%20Presentation%20PITF%207-22-15.pdf

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