



API Guidance for Conservation Programs on Pipeline Right-of-Ways



American
Petroleum
Institute

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Preamble



Preamble

Executive Summary

This document provides guidelines, resources, and strategies for pipeline operators and managers to use in the development and management of conservation programs for pipeline rights-of-way (ROW) and assets. The goal of this document is to help operators and managers with ROW conservation programs, including guidance on how to identify, plan, implement, and mature conservation practices to maintain the highest standards of safety while also achieving benefits for the natural environment, the community, and the organization.

Conditions of Applicability

American Petroleum Institute (API) publications may be used by anyone desiring to do so. Every effort has been to assure the accuracy and reliability of the information contained in them; however, API makes no representation, warranty, or guarantee in connection with this publication and hereby expressly disclaims any liability or responsibility for loss or damage resulting from its use or for the violation of any federal, state, or municipal regulation with which this publication may conflict.

Background and Context

Origin and History

America's natural gas and oil companies are mindful of the responsibilities associated with affordably and reliably delivering energy that's fundamental to public lives. The transmission of this energy should be achieved in a way that recognizes and delivers positive social, environmental, and economic impacts.

API members are actively working together to track and improve their sustainability performance while striving for appropriate engagement and transparency with communities and stakeholders. API remains committed to building tools and platforms to help the industry enhance and expand a culture of safety and sustainability throughout all operations.

To support its members and their commitment to environmental, social, and corporate governance (ESG) issues, API formed a Task Force in Spring 2021 to provide input and feedback on the development of conservation guidelines for oil and natural gas infrastructure management (e.g., ROWs). This document, a result of that effort, includes guidelines and best practices for general habitat management (HM), species-specific HM, integrated vegetation management (IVM), and coastal restoration projects.

The goal is to provide industry and member organizations access to information, tools, and resources in order to gain knowledge and build capacity for safe and effective conservation programs on ROWs.

Context

What is a ROW Conservation Program?

Conservation programs provide an integrated and systematic approach to planning, implementing, and sustaining ROW land management that is value-driven. The result is enhanced safety, community benefits, operational efficiencies, and a healthier ecosystem while maintaining state and federal regulatory compliance.

Built upon adaptive management principles, conservation programs take a systematic approach to determine the best methods and actions to achieve management objectives while considering benefits, impact, risk, and cost.

Why is it Important?

- To maintain the highest standards of safety
- To increase maintenance and operational efficiencies
- To create a healthier ecosystem (e.g., increasing carbon capture and creating and protecting habitats of threatened or endangered species)
- To improve community relationships
- To support corporate sustainability goals (e.g., ESG reporting)
- To set a foundation for future licenses to operate

Ultimately, a conservation program supports the construction, operation, and maintenance of oil and natural gas infrastructure in a manner that fosters a positive and beneficial experience for communities and the surrounding environment.

Guiding Principles and Practices

Conservation program guidance is grounded in many of API's principles and practices that have been adopted by member organizations and industry.

API's Principles²:



Respect

Pipeline operators treat stakeholders with respect because we value relationships within the communities we serve. We demonstrate respect by listening to questions, understanding concerns, and sharing our own perspectives. Considering and respecting others' points of view are critical to establish long-term relationships.



Integrity

By operating with integrity, the pipeline industry strives to build and maintain positive, constructive, and trusting community relationships. Pipeline operators maintain a presence as leaders in the community with a reputation for forthright engagement on issues important to their stakeholders.



Safety and Environmental Responsibility

The pipeline industry is committed to safety and the protection of the environment and public using clearly defined policies and practices. The goal is to operate daily in a manner that protects the safety, environment, and health of communities, employees, and contractors with zero incidents.



Openness and Responsiveness to Community Concerns

Engagement and effective communication with the public forms a core element of safety management. Through the engagement process, pipeline operators thoroughly manage risk and establish genuine and open public partnerships. When speaking to community members, we follow basic communication principles that can form the foundation for credibility, improved dialogue, and understanding.



Engagement and Contribution³

The collaboration with partners in the community and within member organizations drives industry to make a difference and have a positive impact on the environment, community, and ecosystem. Through the contributions of company employees and volunteers, industry strives to deliver positive social, environmental, and economic impacts to make the world a better place.

² API Community Engagement Guidelines, 2020 (<https://www.api.org/-/media/Files/Policy/Infrastructure/2020/API-Community-Engagement-Guidelines>)

³ API RP 1185, *Pipeline Public Engagement*

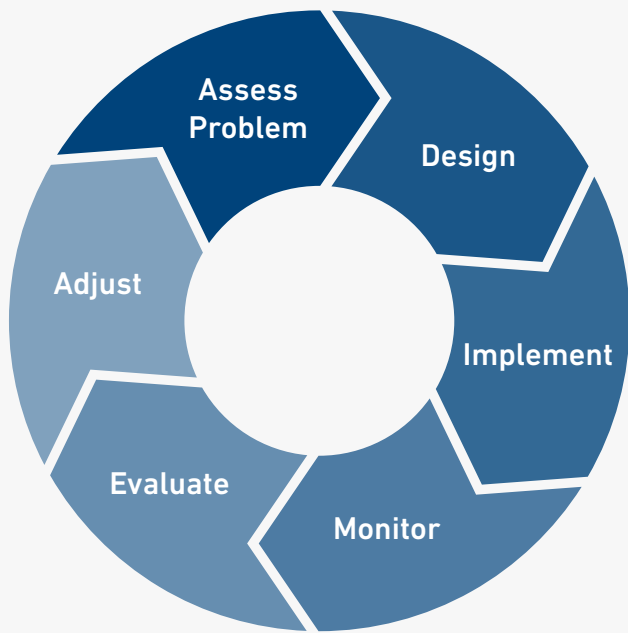


Figure 1. Diagram of the adaptive management process.

Practices:

Understand, Plan, Engage:

A community engagement approach for pipeline projects⁴

Plan, Do, Check, Act (PDCA) Cycle:

An iterative four-step model to used for continual improvement⁵

Adaptive Management Process:

A structured approach for managing natural resources emphasizing accountability and explicit decision making in order to achieve management objectives (see Figure 1)⁶

⁴ API Community Engagement Guidelines, 2020 (<https://www.api.org/~media/Files/Policy/Infrastructure/2020/API-Community-Engagement-Guidelines>)

⁵ RP 1173 Pipeline SMS Fact Sheet, 2018 (<http://pipelinesms.org/fact-sheet-rp-1173-pipeline-safety-management-systems>)

⁶ U.S. Department of Interior, 2009; Adaptive Management Technical Guide (<https://www.doi.gov/sites/doi.gov/files/migrated/ppa/upload/Chapter1.pdf>)

Purpose of Guidelines

This document is a “ways of working guide” for industry that provides a strategic approach to conservation projects and or programs for pipeline ROW maintenance. The guidelines provide guidance and recommended best practices for developing and delivering sustainable programs.

Through use of these guidelines, ROW managers and their teams can identify opportunities for adjusted management of the ROW to achieve better conservation and community outcomes.

Ideal outcomes from using the guidelines:

- ROW managers have a clear sense of how to embark upon ROW conservation efforts. The ROW land has more productive environmental use and is viewed as an environmental asset.
- Midstream managers are able to lead and support such efforts and integrate them into broader organizational priorities.
- Midstream companies manage ROWs with a better understanding of the magnitude of benefits, added value, and overall impact on the ecosystem.
- The community is engaged and energized through partnership with ROW operators.
- Improved relationships and partnerships result in greater impact on individuals, organizations, and society by balancing the requirements to realize both short-term and long-term benefits.
- Operators develop productive working relationships with conservation organizations and public land managers (e.g., forest preserves, U.S. Fish and Wildlife Service [USFWS], etc.).

How to Use the Guidelines

The ROW Conservation Guidelines are for oil and natural gas companies that are interested in becoming better environmental stewards by adopting pipeline ROW habitat management and IVM best practices where applicable. In addition to the positive safety, environmental, and community benefits, these guidelines can help lay the right foundation for future licenses to operate—creating new possibilities for pipelines and future energy sources.

These guidelines are a starting point; they are not fully comprehensive as there are a multitude of factors that must be considered when developing a ROW management approach, including geographic location, biological factors, community interests, and more. To further refine and tailor their approach, ROW managers are encouraged to consult the external resources included in the guidelines and seek out partners and members of the community.

Conservation Guidelines





Conservation Guidelines

Overview of Process

The ROW Conservation Guidelines are intended to be a starting point for pipeline operators to further mature their management practices to incorporate conservation goals. These guidelines are primarily geared toward oil and natural gas companies evaluating interstate and intrastate pipeline ROWs (pre- and post-construction) to determine whether additional environmental and community value can be derived from the land while maintaining safe and effective transport. It is important that pipeline operators validate with the necessary regulators and landowners before taking any action and to ensure compliance with all appropriate regulatory requirements.

Achieving internal alignment is critical for the effort's success. Pipeline operators should establish a shared perspective and understanding of goals for the conservation effort before they implement new practices. It is recommended that a pipeline operator undertaking conservation efforts establish a planning team that is responsible for engaging the proper individuals throughout the organization at each stage. Proper planning helps prevent unanticipated or unintended outcomes from any changes that result from newly implemented practices.

Depending on the goals, ROW conservation programs can vary in their complexity and scope. A simple change to mowing schedules might not require all the same process steps as a full-scale adoption of IVM practices. There are several planning steps that all conservation efforts are recommended to follow regardless of their complexity. Other steps can and should be layered on top of those foundational elements for more complicated efforts. These recommended steps—along with the corresponding PDCA cycle step (in parentheses)—are listed on the next page.



Simplified Planning

- Establish planning team (P)
- Engage internal and external stakeholders (P, D, C, A)
- Document opportunities and constraints (P)
- Evaluate potential techniques (P)
- Implement techniques (D)
- Document results and learnings, adjust as needed (C, A)



Full Planning

- Establish planning team (P)
- Engage stakeholders and build community partnerships (P, D, C, A)
- Develop business case (P)
- Identify and assess current state of ROW (P)
- Setting objectives for the ROW site (P)
- Evaluating potential conservation practices (P)
- Implementing conservation best practices and techniques (D)
- Monitoring and adapting (C, A)

Community Partnership and Stakeholder Engagement

ROW conservation efforts rely on transparent interactions between a variety of stakeholders including landowners, neighbors, conservation advocates, researchers, and regulators to understand what would work well in achieving the best possible outcome. Best practices indicate that stakeholders need to be engaged throughout the project lifecycle from planning through execution. It is important to engage the right stakeholders at the right level and the right time. This can include identifying stakeholders to stand up a planning team and building a coalition of leaders who will champion the effort. It is important that the planning team identifies all stakeholders, including both internal and external to the pipeline operator. The planning team should consider the internal stakeholders who need to be engaged to create a shared perspective around the business case as well as the external stakeholders who have a range of interest and influence. Ultimately, stakeholder buy-in is critical to the success of a conservation effort and to maintaining the company’s social license to operate.⁷

Stakeholders to Consider

INTERNAL	EXTERNAL
<ul style="list-style-type: none">• Executive leadership• Managers and site supervision• Operators/frontline staff• Communication/marketing/public affairs• Corporate sustainability• Project team• Environment, land, and regulatory experts	<ul style="list-style-type: none">• Landowners• Neighbors• Conservation Advocates• Researchers• Regulators• City/local Government Officials• Land-managing Agencies

Additional potential stakeholders, and considerations for engagement, are listed in API Recommended Practice 1162, *Public Awareness Programs for Pipeline Operators*) and API Recommended Practice 1185, *Pipeline Public Engagement*.

Community engagement is recognized both as a key vehicle for achieving a social license and for improving pipeline safety; therefore, following stakeholder engagement best practices is encouraged throughout conservation efforts. Ultimately, understanding stakeholders’ needs and interests will lead to effectively planning and implementing

⁷ Melanie Dare, Jacki Schirmer and Frank Vanclay, 2014. Community Engagement and Social Licence to Operate.

conservation efforts that yield the best results. Involving stakeholders early in the process, including in the process of setting objectives, is a recommended best practice.

Establishing community partnerships is a critical success factor in many conservation efforts. These partnerships can help increase the effort's overall impact and benefits through ongoing collaboration, engagement, and support.

Communication is a key component of stakeholder engagement and is essential to planning and implementing successful conservation efforts. The planning team should develop a communications strategy, tailoring messages to each audience of stakeholders that have been identified. Messaging should be clear, concise, and communicate the desired results of the conservation efforts. Stakeholders should have a shared understanding of why, where, when, and how conservation efforts will be implemented. Communicating the benefits of implementing the conservation efforts is also critical to help set priorities, anticipate and prevent potential problems, and expand the network of support and buy-in. Much like the business plan, communications plans can and should evolve over time as more details about the conservation effort become known.

Some best practices are included on the next page; additional details can be found in the [API Community Engagement Guidelines](#).

Best Practices:

01

Follow the three recommended phases from the Community Engagement Guidelines: Understand, Plan, and Engage.

Identify all possible stakeholders (internal and external).
Key questions to consider:

02

- Who would have an influence on the effort's success?
- Who would have decision-making authority over the effort?
- Who would need to have a role at some point in the effort?
- Who might benefit from the effort?
- Who might have concerns about the effort?
- Who are potential supporters? Resisters?

03

Create a stakeholder register to help track and organize information (see sample template in [Appendix B](#)).

04

Complete a stakeholder mapping exercise to determine the appropriate strategy and approach for enrolling and engaging stakeholders (see sample template in [Appendix C](#)).

Determine the type of engagement that will be needed for each stakeholder.

05

- **Consulting:** involvement in the planning and decision-making process
- **Informing:** awareness of decision, progress, and status
- **Participation:** involvement in the effort's activities and contribution of resources

06

Create core messaging around the conservation effort and tailor for each audience based on the unique needs and interests (see sample template in [Appendix D](#)).

07

Engage stakeholders early in the process and keep them engaged throughout the entire effort.

Case Study: Why Stakeholders Matter – Benefits and the Value Added

Enable Midstream partnered with National Wild Turkey Federation (NWTf) and Quail Forever to develop a partnership for improving wildlife habitat. Within a year of establishing their partnership to enhance wildlife habitat on Enable Midstream ROW, NWTf had endorsed 2,000 acres for habitat improvement and provided evidence of the benefits of shared stewardship between the company and the federation. Per NWTf: “This partnership accomplishes two important goals: It creates an excellent wildlife hub and decreases operational expenses to maintain that right of way.”⁸

Develop the Business Case

When developing a ROW conservation strategy, the planning team should ensure key members of their organization are aligned on the goals of the effort, the potential costs, and the benefits. Throughout the conservation effort, it is recommended that pipeline operators balance the need for certainty with the flexibility to investigate new opportunities.

The business case should be used as a tool to ensure support at each stage of the effort. Initially, the planning team only requires enough information to allow for further exploration. An initial business case should provide enough detail to allow decision-makers to identify a range of potential outcomes. It should specify which model is being used, approximate timeframe for the effort, and a high-level description of the characteristics of the proposed program. Characteristics to note include:

- **Broad goals/objectives**
- **Information on the current state of management practices**
- **Potential partners**
- **Communications plan (see “Community Partnership and Stakeholder Engagement”)**
- **Clear roles**
- **Costs, risks, benefits, and impacts**

⁸ National Wild Turkey Federation, 2020; Enable Midstream: Enhancing right of way habitat for wildlife (<https://www.nwtf.org/conservation/article/enhancing-habitat-for-wildlife>)



For additional guidance, refer to the template created by the Utility Arborist Association (UAA) for [Creating the Business Case for IVM](#).

Over time, the business case will be updated and revised to include more exact information about costs, timelines, and opportunities. An example of key business plan sections is included in [Appendix E](#). Prior to developing a business plan, the planning team should consult with their leadership team to determine the exact information necessary to make a decision. The plan format should then be tailored as needed.

The scale of conservation efforts, and the corresponding business case can vary depending on organizational maturity, readiness, and level of available resources. Common models for engaging in ROW conservation efforts include:

- One-off pilot or single site effort
- Cluster of efforts
- Large integrated program

For broader efforts, a business plan should also include details about how efforts will learn from and expand upon one another.

Identify and Assess the Current State of the ROW

As planning teams seek to identify potential sites for ROW conservation, they should evaluate the site's opportunities and constraints. Depending on the pipeline operator's level of maturity implementing conservation practices, the planning team may opt to prioritize a site with more opportunities and fewer constraints. As pipeline operators continue to deepen and mature their practices, additional consideration could be given to constrained sites to determine whether some of those constraints can be managed. Pipeline operators should balance the potential benefits of implementing a conservation program with the relative levels of risk. (See [Appendix F](#) for a

helpful decision-making framework that is adapted from The Nature Conservancy’s article, [Risky Conservation: How to Identify and Manage It.](#)) A pipeline operator does not need to have a perfect sense of all the factors at play, particularly at the early stages of the planning process. Rather, the planning team should be seeking to answer, “Is there enough potential to this site to warrant further exploration of a potential conservation program?”

Over time, as the decision to embark on a conservation program on a particular site becomes more likely, the planning team should seek to develop a more thorough understanding of the site conditions.

Identifying Opportunities

For each site the planning team is reviewing, they should consider some or all of the following questions:

- Are there any factors from the site’s environmental impact assessment or other permitting documents that ROW conservation might be able to positively influence?
- Is the ROW part of, located nearby, or connected to any habitat for endangered species?
 - » Consult the USFWS Environmental Conservation Online System ([ECOS](#)) or Information for Planning and Consultation ([IPAC](#)).
- Have any existing habitat-monitoring activities been conducted? If so, what were the results, and can any of those previous efforts be leveraged for this latest project?
 - » If not, might it be possible to conduct a baseline monitoring activity (such as [Pollinator Habitat Scorecard](#) or [Habitat Assessment Guides](#)) or habitat prioritization activity (such as [Landscape Prioritization Model of Roadside Habitat for Monarchs](#))?
- Are there any federal, state, regional, or local programs that can provide resources or support to an effort on this ROW (such as [Working Lands for Wildlife](#))?
- Are there any organizations or stakeholders that might be interested in partnering on a conservation effort? (See [Appendix G](#) list of potential partners.)
- Are there any grant opportunities that the effort might be able to leverage (e.g., [Coastal and Estuarine Land Conservation Program \[CELCP\]](#) or [National Fish & Wildlife Foundation \[NFWF\]](#))?
- Does the pipeline operator have any existing conservation practices, goals, or partnerships in place, for this site or others, that could be expanded upon?

Documenting Constraints

The planning team should also ask questions about each site to evaluate and document potential constraints, including:

- Are there any site factors that could negatively impact conservation efforts such as soil or hydrologic conditions?
- Does the organization have vendors who specialize in, or possess knowledge of, this type of activity? The UAA has recommendations for [how to craft a Statement of Work](#) to find the right vendors.
- Are there any protected species that currently use the ROW for habitat (or use surrounding areas for habitat) that could be negatively impacted by changes?
- Are there any state or local regulations that may influence how the ROW should be managed?
 - » Consult the [Pipeline & Hazardous Materials Safety Administration \(PHMSA\) State Pages](#) or [National Association of Pipeline Safety Representatives \(NAPSR\) Compendium](#) for some insight on state regulations.
- Is there potential for opposition from the community or landowners?
- Do the operations and maintenance teams have any concerns about the site that might need to be addressed?
- Could land use or ownership change in the future?

Setting Objectives for the ROW Site

Setting objectives determines what will be accomplished on the site. For all pipelines, the overarching goal is to provide safe and reliable transmission of oil, natural gas, and their products. However, there is flexibility in how managers meet this goal, and there are opportunities to add additional goals that complement safety efforts. Offering different types of low-growing plant communities or using different treatment methods that conserve elements of the habitat are examples of objectives that can help achieve multiple end goals.

Leveraging information collected during the initial environmental scan and assessment of the current state of the ROW—along with input received from initial stakeholder engagement—the planning team should set objectives that align with other overarching goals including (but not limited to) safety and compliance, environmental goals, community interest, and pipeline operator strategic priorities. The planning team should engage internal and external stakeholders in the

process for developing management objectives; managers must learn and understand the needs and interest of all parties in order to adjust techniques and accommodate them where possible.

In setting objectives, pipeline operators can use scorecards or other assessments as a best practice to highlight current program accomplishments and identify areas for improvement. The intent is for the planning team to benchmark the current level of operational maturity and habitat resources of the site and reflect on past or present efforts to identify opportunities to enhance operational excellence and habitat benefits. The [Vegetation Management Maturity Model](#), [Managing Compatible Vegetation Guide](#), and [Pollinator Habitat Scorecard](#) are examples of resources that can be used to help set objectives.

Once objectives for the ROW site have been identified, the planning team should engage stakeholders to ensure the right level of support and commitment is achieved to continue in the planning process. Key stakeholders such as decision makers, personnel responsible for completing the work, and individuals that will be impacted by the conservation efforts need to be aligned on the objectives and understand the outcomes, benefits, and what it means for them.

Best practices:



Clearly define and document objectives.



Follow the SMART framework:
Specific, Measurable, Attainable, Realistic, and Timely.



Consider community and stakeholder needs and interests, organizational goals, safety compliance and regulations.



Set objectives based on site factors such as vegetation type, environmental conditions, and available resources (e.g., human, equipment, financial). Set tolerance thresholds that allow for future monitoring and adaptation, as needed.

Goals to Consider When Setting Objectives



Safety and Compliance Goals

Regulatory considerations:

- PHMSA
- Federal Energy Regulatory Commission (FERC)
- Occupational Safety and Health Administration (OSHA)
- State agencies



Environmental Goals

- Water quality
- Soil/erosion control
- Native/invasive species
- Threatened/endangered species
- Pollinators
- Wildlife habitat
- Promoting carbon sequestration



Community Goals

- Birdwatching
- Hunting
- Recreation
- General interest in conservation
- Agriculture



Business and Organizational Goals

- Strategic plans
- Corporate & social responsibilities
- ESG reporting
- Cost-effective operations
- Pipeline safety management systems

Evaluating Potential Conservation Best Practices and Techniques

Based on the site objectives, the planning team should begin to identify specific changes to existing ROW management practices. Broadly speaking, these adjusted practices typically fall in the category of vegetation management, HM, and coastal management. Regardless of the category of the management practice, the ROW planning team should ask themselves the following questions for each management intervention being considered:

- Which of the site objectives will this help achieve? How effectively will it be able to produce that impact? Will it have any additional positive benefits outside of the primary project objectives?
- Will it potentially have negative impacts on any of the other site objectives or any consequences outside the scope of the site objectives? For any potentially negative impacts, do they fall within acceptable levels of risk? If not, might they be mitigated?
- How will our organizational practices need to adjust to help facilitate these changes? Will any policies, contracts, or standards need to be updated to reflect these changes?
- How will it impact costs (up front and long term), if implemented?

Cost Savings from Conservation

The cost savings from implementing conservation practices can vary depending on the effort. At the Bayou Teche National Wildlife Refuge in Louisiana, Shell and USFWS have established a conservation partnership that involves the planting of native seeds to produce pollinator habitat. This partnership has reduced the need for mowing and has resulted in USFWS taking on increased responsibility for the mowing, reducing Shell's operating costs for the ROW. More complex efforts, such as full-scale IVM, have been shown to have a long-term cost savings of 48% over 15-20 years⁹. Resources such as the [UAA Net Present Value Cost Calculator](#) can help operators determine potential cost savings.

As the planning team produces a pre-final set of management interventions, and before any are implemented, the totality of the changes should also be evaluated to determine whether the co-occurrence of any of the changes could also produce any impacts (positive or negative). Planning teams are encouraged to consult experts within their own organizations in the process of evaluating these potential impacts, engage their leadership to ensure risks are acknowledged, and solicit outside advice from companies that specialize in the management of changes being considered.

⁹ John Goodfellow, 2018; The Cost Efficiency of IVM
(<https://www.gotouaa.org/wp-content/uploads/2019/06/Final-Report-Cost-efficiency-of-IVM.pdf>)



Vegetation Management

Vegetation management often bears the bulk of the attention for ROW managers as it is typically a place where there are existing practices in place (allowing for variation on those practices). For planners, vegetation management also represents an opportunity to influence habitat as changes to the vegetation on a ROW will also impact food supply, shelter, and other factors that contribute to habitat. Changes to vegetation management could be as comprehensive as a long-term move to IVM, or as limited as an update to mowing schedules. The below represent some common types of vegetation management change and potential resources to consult to evaluate how they might be able to operate:

- IVM Best Management Practices (See [ANSI A300 Part 7](#) and UAA's Companion Guide: [Managing Compatible Vegetation for Targeted Species and Biodiversity](#), A Companion to the Integrated Vegetation Management Best Management Practice, 3rd Edition).
- Targeting specific plant species for removal. This involves reducing the population of noxious and invasive plants such as through the [use of herbicides](#), spot treatment, or growth (e.g., planting native seed mixes).
- Adjusting mowing practices and timing (see Xerces Society's [guidance on mowing for pollinators](#) or Monarch Joint Venture's [best practices for mowing and management](#)).
- Focusing management of compatible species in specific locations to address requirements associated with conservation agreements, such as habitat conservation plans (HCPs) or candidate conservation agreements with assurances (CCAAs). Additional information on these conservation tools can be found through the [USFWS](#).

Coastal Management

For sites that border a coastline, the planning team may also consider coastal management efforts to address issues such as [coastal erosion](#) and habitat availability. Planners can consider use of approaches such as [living shorelines](#) and [restoration approaches](#) to help achieve such goals. Additional resources can be found from organizations such as the [National](#)

Oceanic and Atmospheric Administration (NOAA). Depending on the scope of the planned effort, projects may also be able to leverage [climate adaptation funds or resources](#).

Case Study: Shell Lost Lake Sediment Entrainment Project

The Louisiana Coastal Protection and Restoration Authority (CPRA) undertook a wetlands restoration effort near Lost Lake in Terrebonne Parish. The CPRA conducted dredging on the lake sediment, using it to construct a marsh. The Shell Ship Shoal pipeline ROW in the vicinity was not originally part of CPRA's project scope, though the changes to the hydrodynamics of the area would potentially impact pipeline cover and create the potential for third-party impact and risk. Shell worked with the CPRA to identify the potential risk and develop a plan for using lake sediment and nature-based solutions to produce additional pipeline cover, support healthy marsh development, and prevent boat access. Through this effort, Shell established a strong partnership with the CPRA and the landowner, produced positive safety and environmental outcomes, and reduced the maintenance cost for the impacted section of pipeline.

Habitat Management

Habitat management helps wildlife meet its four core life needs: food, cover, water, and space. The use of vegetation management and coastal management techniques can impact habitat. Beyond changes to those management practices, planning teams can also consider more targeted changes to a ROW to specifically create habitat for certain species. These practices may include:

- [Nesting posts and boxes](#)
- [Bat boxes](#)
- Natural cover for small mammals, amphibians, birds, insects, and other wildlife through use of dead wood. Techniques will vary regionally - consult resources from the relevant state or region (e.g. [Pennsylvania](#) or the [Pacific Northwest](#)).
- Cover boards and other [habitat management techniques](#) for amphibians and reptiles.
- Pollinator management practices such as the [Pollinator Habitat Establishment & Management Guide](#) from The Bee & Butterfly Habitat Fund.
- Forage for pollinators—consult best management practices (BMPs) from the Xerces Society:
 - » [Mid-Atlantic Native Meadows](#)
 - » [Interseeding Wildflowers to Diversify Grasslands for Pollinators](#)
 - » [Managing for Monarchs in the West](#)
 - » [Establishing Pollinator Meadows from Seed](#)
 - » [Maintaining Diverse Stands of Wildflowers Planted for Pollinators](#)

Implementing Conservation Best Practices and Techniques

The exact process for implementing conservation practices is likely to vary between pipeline operators. Importantly, the planning team should ensure that practices are in line with existing ROW agreements (e.g., landowner lease or easement) or they've been adjusted in coordination with any landowners, to the extent that changes are necessary. Per API Recommended Practice 1162, [damage prevention guidelines](#), and the communications and stakeholder engagement strategy established as part of this effort, operators should ensure stakeholders are properly notified. The planning team should also ensure close orchestration with maintenance service providers to make any needed changes to [contract language and specifications](#), guidance with existing service providers, and/or guidance for new service providers are appropriately considered. As changes to operations and maintenance processes are identified, the planning team should work with the relevant entities within their organization to ensure documentation of new maintenance procedures along with updates to existing procedures.

Prior to implementation, the planning team should also evaluate whether others within their organization have made similar changes previously. If so, the planning team may be able to benefit from the insights gained from that work. Finally, the planning team should validate what, if any, regulatory impacts may exist and should ensure coordination with the proper stakeholders. If regulators have concerns about a proposed approach, operators should also confer with conservation experts within their organization to ensure an open dialogue between the organization and its regulators on how best to maintain compliance while achieving beneficial environmental outcomes.

There are several best practices and existing resources that the planning team can use as a starting point for how best to implement the selected conservation methods. These recommended practices are divided into categories below.

Vegetation Management

Regardless of the technique employed, consider using a pipe/border zone concept. By using this technique, the area directly above the pipeline can be managed to encourage a shorter-growing selection of grasses and forbs that can help maintain ease of inspection and prevent growth of woody roots ([ANSI A300 Part 7, 2018](#)). The adjoining "border zone" can then be managed to encourage the growth of other, more varied vegetation that can be used to advance a number of conservation goals.

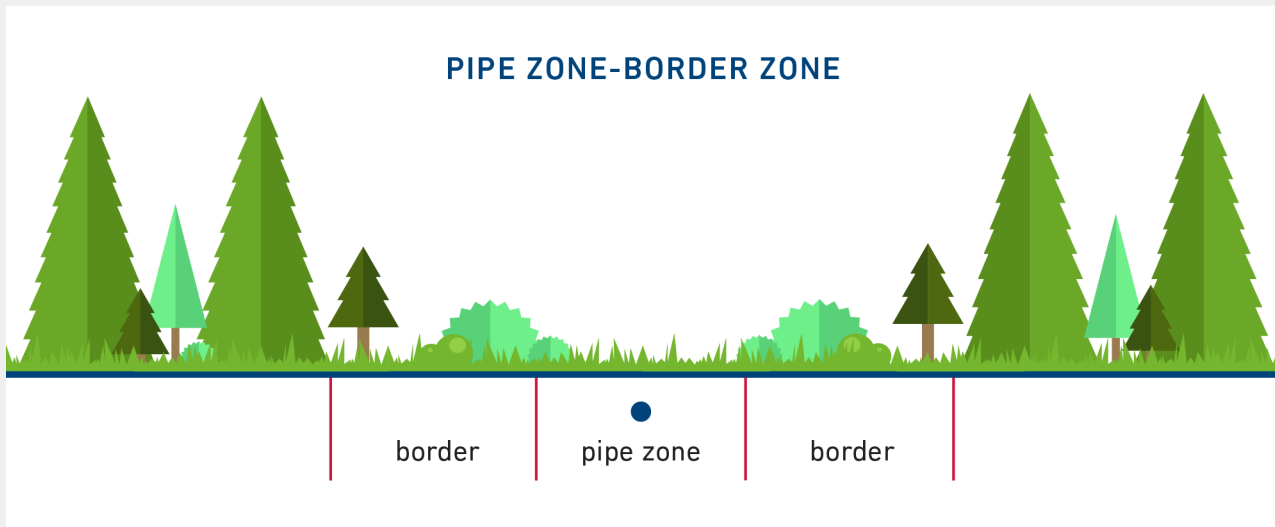


Figure 2. Pipe zone-border zone concept for IVM on pipeline ROW (Utility Arborist Newslines, 2012).

Additional considerations for vegetation management include:

- [FERC Upland Erosion Control, Revegetation and Maintenance Plan](#) guidelines for mowing on natural gas pipeline ROWs (note: does not apply to liquid pipelines). See more [FERC guidelines](#).
- [PHMSA O&M Part 192 §192.705](#) [Rev 7 21 2017] notes that vegetation on ROWs must not obscure aerial inspection, though a surface patrol may be used in lieu of an aerial inspection.
- [PHMSA 49 CFR Part 195](#) contains guidelines for line markers (195.410) and other relevant topics.
- [ANSI A300 Part 7](#) includes more in-depth recommendations for how to implement IVM techniques on a ROW.
- For pollinator habitat, the [Rights-of-Way as Habitat Working Group Resource Library](#) has several proposed BMPs for frequency and intensity of management techniques.

Case Study: J. Percy Priest Pipeline ROW Pollinator Site Value Index

At the J. Percy Priest Lake in Nashville, TN, TC Energy worked with IVM specialists and the U.S. Army Corps of Engineers to establish a stretch of ROW that improved ease of access for inspection and created habitat for pollinators. The project team conducted an initial pollinator habitat assessment in 2007 to serve as a baseline for evaluating their efforts. Then, using mowing and herbicides, they cleared the ROW of vegetation, creating the foundation for establishing pollinator-friendly plant communities. The project team used the pipe-border zone concept, with the 15-foot-wide pipe zone kept clearer to allow for access and inspection and the border zone including selective herbicide treatment to encourage the growth of select plants, including those used for pollinator habitat. The project team has continued to monitor the site, adjusting management approaches as-needed. As a result of the project, key metrics have markedly improved, including nectar and pollen source value for honeybees and bumblebees, flowering month range, and presence of pollinator-beneficial plants.



Coastal Management

- NOAA has resources for how to approach the use of **living shorelines**, including potential regulatory considerations.
- The Engineering with Nature program from the U.S. Army Corps of Engineers has guidelines for **Natural and Nature-Based Features for Flood Risk Management**.

Habitat Management

- **Nest box size and placement** varies depending on the species of bird
- **Installing bat boxes**
- Using **dead wood for habitat**
- Forage for pollinators—consult BMPs from the Xerces Society (see previous section “**Evaluating conservation best practices and techniques**”)
- **IPAC** for threatened and endangered species

Monitoring and Adapting

A final step and recommended best practice for conservation is ongoing monitoring of methods applied to evaluate the effectiveness and impact on efforts. Monitoring and evaluation lead to the opportunity to make future changes and enhancements. Adaptive management is used to monitor and adjust treatments and processes as necessary to ensure ongoing achievement of desired results. Adaptive management can be summarized as continuous improvement based upon regular feedback.

During the planning phase, the planning team should develop systems and processes to monitor and evaluate program results. The team should compare results to program objectives and baseline data collected (such as through some of the scorecards listed in the “Setting Objectives

for the ROW Site” section). Findings will help identify opportunities for improvements and adjustments and will provide the planning team/pipeline operator with valuable insight that will guide future decisions. Reporting out to stakeholders is important not only to demonstrate how program outcomes align with the broader organizational goals and strategies but also to provide the opportunity to solicit feedback and make future improvements. Ultimately, continued monitoring and adapting of conservation efforts in project ROWs will dispel concerns that could be associated with a more transactional-based relationship and aid in demonstrating a company’s continued commitment to the surrounding environment and communities.

Best practices:

- Perform site evaluations after applying treatments to monitor the efficacy and appropriateness of control methods and treatments used (e.g., [Pollinator Scorecard Management Model](#)).
 - » Review site, activities, and external factors to:
 - Determine manageable threats present
 - Determine which threats were managed over the past calendar year
 - Note the degree of scale and persistence of actions taken in the past year
 - Determine available opportunities
 - Determine which opportunities were managed over the past calendar year
 - Note the degree of scale and persistence of actions taken in the past year
- Maintain work records to benchmark for future evaluations.
- Conduct systematic program evaluations and document lessons learned to guide recommendations for continued improvements.
- Implement recommended program improvements, developing standard procedures and multi-year plans. See [Pacific Gas and Electric Company](#) and [Enbridge, Inc.](#) for examples of standard procedures and multi-year plans.
- Engage stakeholders in the process by collecting feedback to inform future changes or adjustments.
- Communicate and report out to stakeholders the effort’s outcomes, benefits realized, lessons learned, and next steps. One opportunity is to report managed habitat areas to the [Rights-of-Way as Habitat Geospatial Database](#).
- Identify opportunities to link with broader organizational efforts, learn from others, and bring on partners at later stages.
- Measure against key performance indicators.

Conclusion



Conclusion

By using these guidelines, API believes operators can mature their management practices, strengthen their bond with the communities in which they operate, and benefit the environment. API expects these guidelines will grow and evolve over time as operators use them and as the impacts become clear.

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- Caroline Hernandez and Iris Caldwell, Energy Resources Center, University of Illinois Chicago
- Travis Rogers, Corteva

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Appendices



Appendices

Appendix A: Glossary of Acronyms

Acronym	Term
API	American Petroleum Institute
BMP	Best Management Practice
CELCP	Coastal and Estuarine Land Conservation Program
ECOS	Environmental Conservation Online System
ESG	Environmental, Social, and Corporate Governance
FERC	Federal Energy Regulatory Commission
HM	Habitat Management
IPAC	Information for Planning and Consultation
IVM	Integrated Vegetation Management
NAPSR	National Association of Pipeline Safety Representatives
NOAA	National Oceanic and Atmospheric Administration
OSHA	Occupational Safety and Health Administration
PDCA	Plan, Do, Check, Act
PHMSA	Pipeline & Hazardous Materials Safety Administration
ROW	Right-of-Way
UAA	Utility Arborist Association (UAA)
USFWS	U.S. Fish and Wildlife Service

Appendix B: Stakeholder Register

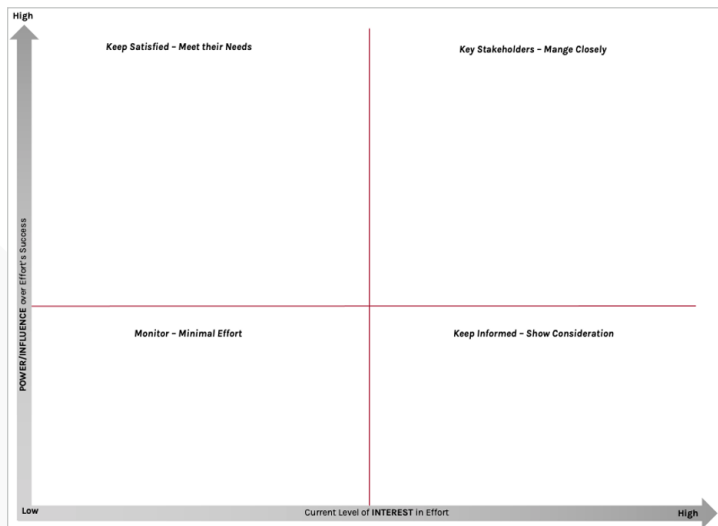
This template is a helpful tool to document project stakeholders. Use the Stakeholder Mapping Template in [Appendix C](#) to help determine power/influence (high, medium, or low) and interest of stakeholders.

	Stakeholder Name	Contact Information	Category (Internal, External, etc.)	Power/Influence (H, M, L)	Interest (H, M, L)	Concerns	Communication Engagement Requirements
1							
2							
3							
4							

Appendix C: Stakeholder Mapping Template

Instructions:

1. Identify the names of the most essential people necessary to achieve your stated outcomes.
2. One by one, discuss where to place them on the model considering their power/influence over the effort's success (vertical axis) and their level of interest in the effort (horizontal axis).
3. When the exercise is complete, review the names and confirm that each person is essential to the success of the effort. If a person is not essential, take their name off the model.
4. Determining where the person falls on the model can help inform your action planning (e.g., best approach for communications and engagement).



Appendix D: Core Messaging and Audience Tailoring Template

Instructions:

1. Identify which stakeholders fall in each audience category to target messaging and messengers.
2. Consider the audience’s interests or concerns to determine what key messages will be necessary to achieve the communication goal.

Purpose	Audience	Interests/ Concerns	Key Messages	Vehicle/ Mechanism	Owner
Purpose and intent for the overall message/ communication	Group of stakeholders that will receive the message	Audience interests or concerns	Outline of key messages to be delivered	Method the message will be distributed	Person responsible for delivering the message

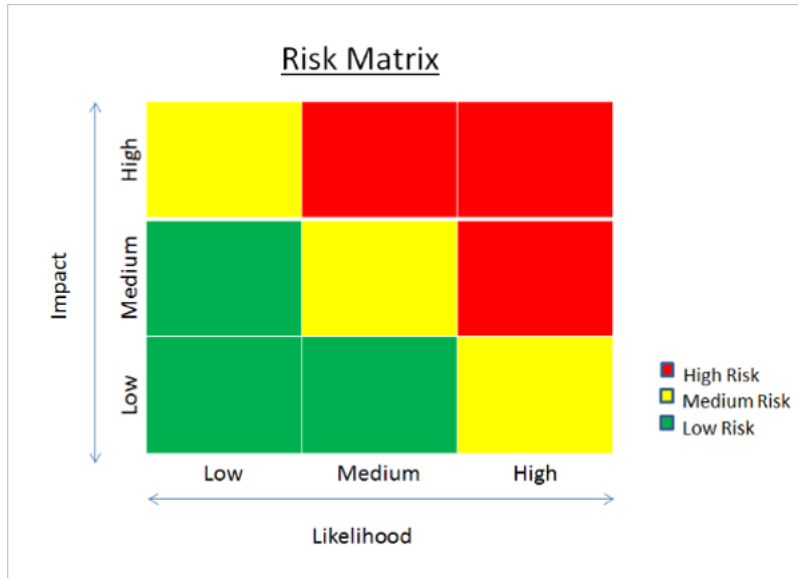
Appendix E: Framework for Developing a Business Plan

This simple framework helps to expand upon the business case and provide more details about the effort and how the goals and objectives will be achieved.

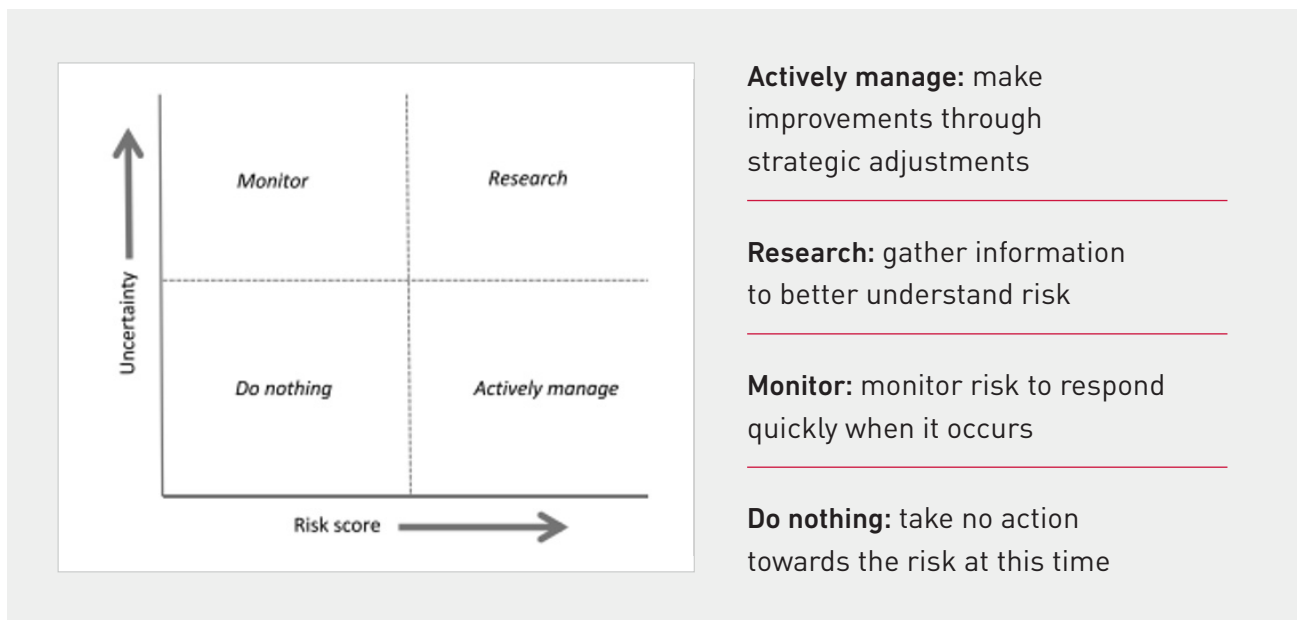
Section	Description
Executive Summary	Gives a brief overview of the plan by highlighting the background, purpose, scope, and benefit
Background and Context	Provides details on why this effort was initiated and the value added
Purpose, Scope, Approach	Defines goals and objectives, scope of work, key milestones, and overall timeline
Actions, Benefits, Risks	Identifies the tasks and actions to be completed, potential risks that will need to be managed, and outcomes and benefits that will be realized
Resources	Includes roles, responsibilities, and budget

Appendix F: Decision-making Framework to Assess Risk

The below risk matrix is a framework used to prioritize risks based on the likelihood of it occurring and the impact it will have on the conservation project. Use this to determine a risk score.



This framework provides four options of how to respond to conservation project risks based on the level of importance (risk score) and the level of uncertainty around the assessment of a risk.



Appendix G: List of Programs and Potential Partners

This is not an exhaustive list. Consider other local parks, municipalities, schools, universities, and conservation groups and programs as potential partners. The [U.S. Climate Resilience Toolkit](#) is another resource to find potential partners.

- Climate Program Office (CPO)
- Coastal and Estuarine Land Conservation Program (CELCP)
- International Society of Arboriculture (ISA)
- National Fish & Wildlife Foundation (NFWF)
- National Oceanic and Atmospheric Administration (NOAA) Office of Oceanic and Atmospheric Research (OAR)
- National Wild Turkey Federation (NWTF)
- Partners for Fish and Wildlife Program (PFW)
- Pheasants Forever
- Pollinator Partnership
- U.S. Geological Survey (USGS)
- USGS Climate Adaptation Centers (CASCs)
- Utility Arborist Association (UAA)
- Wildlife Habitat Council (WHC)

Appendix H: Other Tools and Resources

This list includes useful tools and resources that can support conservation program efforts.

- NASA Mapping
- National Pipeline Mapping System
- Northeast Conservation Planning Atlas
- North Pacific Landscape Conservation Cooperative
- Rights-of-Way as Habitat Geospatial Database
- Southeast Conservation Adaptation Strategy
- University of Illinois Chicago, Rights-of-Way as Habitat Working Group Best Management Practices
- U.S. Climate Resilience Toolkit
- Utility Arborist Association IVM Resources
- XERCES Society's Pollinator Resource Center

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