



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

## **Damage Prevention Assistance Program (DPAP):** *Strengthening State Damage Prevention Programs*

*...ensuring the safe, reliable, and environmentally sound operation of the Nation's pipeline transportation system*



**1<sup>st</sup> Edition**  
**September 2008**

## CONTENTS

<b>Preface</b> .....	<b>1</b>
Purpose of this Document .....	1
Specific Guidance from the PIPES Act .....	1
Importance of the Nine Elements .....	1
Perspectives on Damage Prevention .....	1
We are Here to Help .....	2
<b>Introduction</b> .....	<b>3</b>
What the PIPES Act Specifies .....	3
Who the Stakeholders Are .....	3
How State Programs Differ .....	3
Incorporating the Nine Elements .....	4
<b>Evaluating the Current Program and Developing a Strategy</b> .....	<b>5</b>
Coordinating and Collaborating to Increase Effectiveness .....	5
The Implementation Plan.....	5
<b>The Nine Elements of Effective Damage Prevention Programs</b> .....	<b>6</b>
<b>Element 1 – Enhanced Communication between Operators and Excavators</b> .....	<b>7</b>
<b>Element 2 – Fostering Support and Partnership of all Stakeholders</b> .....	<b>8</b>
<b>Element 3 – Operator’s Use of Performance Measures for Locators</b> .....	<b>9</b>
<b>Element 4 – Partnership in Employee Training</b> .....	<b>11</b>
<b>Element 5 – Partnership in Public Education</b> .....	<b>13</b>
<b>Element 6 – Enforcement Agencies’ Role to Help Resolve Issues</b> .....	<b>15</b>
<b>Element 7 – Fair and Consistent Enforcement of the Law</b> .....	<b>16</b>
<b>Element 8 – Use of Technology to Improve the Locating Process</b> .....	<b>17</b>
<b>Element 9 – Data Analysis to Continually Improve Program Effectiveness</b> .....	<b>19</b>
<b>Appendix A: Integrity Management for Gas Distribution Pipelines (DIMP)</b> .....	<b>20</b>
Report of Phase I Investigations .....	20
<b>Appendix B: Models of Cooperative and Collaborative Partnerships</b> .....	<b>21</b>
Speaking with One Voice .....	21
Symbiosis with Regional CGA Partnerships .....	22
Taking the Lead .....	23

### **Purpose of this Document**

This document provides guidance to stakeholders for strengthening state damage prevention programs. It draws on the definition of effective damage prevention programs found in the Pipeline Inspection, Protection, Enforcement and Safety (PIPES) Act of 2006. Several stakeholder organizations have been consulted in the preparation of this document. The purpose of this document is to assist you in building a new damage prevention program or strengthening an existing one in your state.

### **Specific Guidance from the PIPES Act**

The PIPES Act specifies nine elements of effective damage prevention programs. This document examines each of them in some detail, and makes suggestions for implementing them at the state level. State programs can be improved by incorporating these nine elements, or by enhancing some or all of those elements, as appropriate, that are already present in the existing state program. Identifying and implementing positive changes in processes, procedures, technologies and damage prevention laws may also improve programs.

### **Importance of the Nine Elements**

States seeking damage prevention program grants from U. S. Department of Transportation (DOT) must show that they already incorporate the nine elements or are making substantial progress to incorporate them into their programs.

*However, this guidance document is not intended solely for use in developing proposals for, or qualifying for, state damage prevention program grants. Rather, it aims to assist all states and stakeholders who wish to improve damage prevention programs.*

Whether or not you plan to apply for a grant, the approaches outlined in this document can help you put together a damage prevention program that will improve public safety and perhaps save lives.

### **Perspectives on Damage Prevention**

Different stakeholders bring different perspectives to the crucial work of damage prevention. No matter what "community" of damage prevention stakeholders you belong to—excavators, locators, operators, One-Call centers, emergency responders, local government or the general public—we appreciate and support your damage prevention efforts. We also value your insight into the business practices, the competing interests and the "practical considerations" that exist in your home state. That insight is crucial to successful program development and implementation.

## **We are Here to Assist States**

In addition to this written guidance, PHMSA can, upon request, help initiate and facilitate discussions between damage prevention stakeholder groups in your state who may be exploring opportunities and/or planning a statewide event to strengthen the state program. Complementary technical support and guidance is available through PHMSA's Community Assistance and Technical Services (CATS) Program. CATS managers are in place nationwide to support all pipeline safety stakeholders. More information about the CATS Program can be found online at <http://primis.phmsa.dot.gov/comm/CATS.htm>.

PHMSA stands ready to assist all stakeholders in strengthening their state damage prevention programs. We look forward to supporting your efforts to foster awareness of the nine elements and helping you develop the strongest possible damage prevention programs. Please let us know how we can assist you.

## Introduction

---

### What the PIPES Act Specifies

The PIPES Act amended Title 49, United States Code, Section 601, by adding Section 60134, State Damage Prevention Programs.

Section 60134(a) authorizes the Secretary of Transportation to make grants available to state authorities to assist in strengthening the overall quality and effectiveness of state damage prevention programs.

It defines the qualifications that state authorities must meet to be eligible for damage prevention program grants. In part, the state authority must either “have in effect an effective damage prevention program” that incorporate elements further defined in §60134(b), or demonstrate that it “has made substantial progress toward establishing such a program.” The State Damage Prevention Program grants are administered by the U. S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA).

Previous efforts to provide criteria and guidance in implementing the nine elements of effective damage prevention programs, as defined in the PIPES Act, have been considered.<sup>1, 2</sup> Some aspects of those previous efforts may be incorporated into this document without further specific reference.

### Who the Stakeholders Are

Damage prevention stakeholders include excavators, contract locators, facility owners/operators, one-call centers, local government officials, emergency response organizations, insurers, railroads, road builders, developers, regulatory and enforcement entities, the public and others that have a stake in preventing excavation damage.

### How State Programs Differ

Existing state damage prevention programs vary significantly among all the states regarding:

- What the damage prevention laws and regulations require,

---

<sup>1</sup> National Association of Pipeline Safety Representatives (NAPSR), [Suggested Criteria For Meeting The 9 Elements Of An Effective Damage Prevention Program](#), Compiled by the NAPSR Grant Allocation/Strategic Planning Committee. July 31, 2007

<sup>2</sup> The American Gas Association (AGA), Associated General Contractors (AGC), Association of Oil Pipe Lines (AOPL), Interstate Natural Gas Association of America (INGAA), and National Utility Contractors Association (NUCA) collectively established the Excavation Damage Prevention Initiative (EDPI) to promote development of a comprehensive consensus among stakeholders on implementation of the nine elements. The EDPI produced a draft paper, “Guide to the 9 Elements,” in 2007.

- Which stakeholders are included in or excluded by existing damage prevention laws and regulations,
- Which stakeholders are responsible for taking specific damage prevention actions,
- How equably, aggressively and effectively the laws and regulations are enforced, and
- How effective the programs are in preventing underground facility damages.

### **Incorporating the Nine Elements**

Damage prevention program improvement can best be achieved by incorporation of the nine elements of effective damage prevention programs that are defined in the PIPES Act. In some cases, states may already have achieved this or it may be achieved by enhancement of some or all of those program elements that are already present in the existing state program.

It is presumed that the laws in every state already address some basic requirements of damage prevention, such as the operation of a one-call center and certain requirements pertaining to its use, and may already include some or all of the nine elements to varying degrees.

## Evaluating the Current Program and Developing a Strategy

---

Stakeholders involved in strengthening their state's damage prevention program can evaluate the existing program and determine how best to incorporate the nine elements. The goals of a program evaluation are to determine which of the nine elements, if any, need to be added to the program and where enhancements to some or all of the existing elements in the program may improve the effectiveness of the program. PHMSA can assist states and stakeholders in performing a program gap analysis.

*Stakeholders should evaluate their state damage prevention program to determine where improvements are needed.*

### Coordinating and Collaborating to Increase Effectiveness

It is recommended that stakeholders engage cooperatively as a group to evaluate their state's damage prevention program and work to develop a program that effectively incorporates the nine elements. Stakeholders may want to identify a champion, or multiple champions, to challenge the excavation damage prevention stakeholder community to come together within the state to affect change.

A cooperative stakeholder group can become the source for coordinated and collaborative advocacy for the development or enhancement of the state's damage prevention program to incorporate the nine elements identified in the PIPES Act. It can become the driving force for change in this regard. A collaborative effort can build support and partnership as each stakeholder becomes aware of the various impacts and perspectives of damage prevention through effective communication with other stakeholders.

### The Implementation Plan

Following an evaluation, stakeholders can determine if an improvement strategy and implementation plan should be developed. The purpose of this plan would be to seek to incorporate those missing elements or, if necessary, enhance those portions of the program that seem to address one or more of the nine elements. To monitor the progress in implementing the plan, it can be reviewed periodically (e.g., annually).

Although numbered and listed in a numeric order in the PIPES Act, the nine elements are not listed "in order of importance". Each of the nine elements should be viewed individually, as a discrete and important characteristic of an effective program.

## The Nine Elements of Effective Damage Prevention Programs

---

The nine elements specified in the PIPES Act reflect processes and attributes characteristic of comprehensive and effective damage prevention programs. They are not prescriptive; rather, they are process and goal-oriented, providing latitude in how each element might be achieved. Comprehensive and effective damage prevention programs will likely exhibit all of the elements to one degree or another.

*No two damage prevention programs are exactly alike, but comprehensive, effective programs incorporate the nine key elements.*

The nine elements noted in the PIPES Act address the following areas:

- 1. Enhanced communication between operators and excavators**
- 2. Fostering support and partnership of all stakeholders**
- 3. Operator's Use of Performance Measures for Locators**
- 4. Partnership in Employee Training**
- 5. Partnership in Public Education**
- 6. Enforcement Agencies' Role to Help Resolve Issues**
- 7. Fair and Consistent Enforcement of the Law**
- 8. Use of Technology to Improve the Locating Process**
- 9. Data Analysis to Continually Improve Program Effectiveness**

The exact wording of the nine elements as they appear in the PIPES Act is included in the discussions below.

The nine elements were developed during a study “established to collect and analyze available information and to reach findings and conclusions to inform future work by PHMSA relative to implementing integrity management principles for gas distribution pipelines” (see [Appendix A](#)).

Additionally, the nine elements are considered consistent and congruent with the Common Ground Alliance (CGA) Best Practices.<sup>3</sup>

---

<sup>3</sup> CGA Best Practices, Version 5.0, March 2008. ([www.commongroundalliance.com](http://www.commongroundalliance.com)).



## Element 1 – Enhanced Communication between Operators and Excavators

---

Element 1 is stated in the PIPES Act as:

*“Participation by operators, excavators, and other stakeholders in the development and implementation of methods for establishing and maintaining effective communications between stakeholders from receipt of an excavation notification until successful completion of the excavation, as appropriate.”*

***Effective and timely communication between one-call process stakeholders is critical.***

This element addresses communication among the stakeholders specifically involved in the one-call notification process. Previous studies and damage prevention efforts have pointed to the fact that effective and timely communication among stakeholders involved in the one-call process is critical. This process normally involves:

- The excavator notifies the one-call center of a planned excavation and is assigned a notification ticket number. By law, the excavator must wait a specified amount of time before beginning to dig, to allow for affected underground utilities to be located and marked.
- The one-call center receives the excavator’s request, assigns a notification ticket number and issues a locate ticket to member utility operators.
- Each member utility operator or its contract locator receives the locate ticket, determines if it has facilities within the intended excavation area and, if so, physically locates and marks the facilities.
- In some states the operators/locators provide a positive response code to the one-call center relative to the ticket.
- Information regarding the status of the ticket is available to the excavator.

The various aspects of damage prevention communication within the state can be evaluated to identify existing communication pathways, processes and methods, technologies, barriers, and other areas where improvements may be needed and enhancements possible. Although the one-call process primarily involves excavators, the one-call center, facility operators and contract locators, participation by all stakeholders can be useful in the development and implementation of methods for establishing and maintaining effective communications.

## Element 2 – Fostering Support and Partnership of all Stakeholders

---

Element 2 is stated in the PIPES Act as:

*“A process for fostering and ensuring the support and partnership of stakeholders, including excavators, operators, locators, designers, and local government in all phases of the program.”*

***All damage prevention stakeholders should be encouraged to participate.***

If stakeholders come together in a collaborative effort, steps toward the goal of Element 2 have already begun. The ongoing efforts of the group can readily embody this element in strengthening the state damage prevention program. Development and documentation of a process to continue to foster and ensure ongoing support and partnership through a collaborative effort in all phases of the program can be easily achieved. Models for partnership and collaboration to facilitate this element already exist. Appendix B provides additional discussion and examples of cooperative and collaborative partnerships.

It is best if all stakeholders are represented in consideration of Element 2. Issues of trust and fairness must be recognized, understood and fairly resolved. Partnerships unavoidably involve the perceptions of the participating stakeholders in how their interests and concerns are being addressed. Transparency in the process is important for fostering continued support and partnership, as is the level of legitimacy it possesses. How well and equably rules and procedures are established and followed, how legitimately diverse perspectives are considered and how equably disputes are resolved can affect the durability of support and partnership.

## Element 3 – Operator’s Use of Performance Measures for Locators

---

Element 3 is stated in the PIPES Act as:

*“A process for reviewing the adequacy of a pipeline operator’s internal performance measures regarding persons performing locating services and quality assurance programs.”*

***Training programs should be monitored to ensure they are effective.***

This guidance is intended to support all damage prevention stakeholders, including operators of underground facilities that are not pipelines. Thus, for the purpose of this guidance, Element 3 is better stated as **“A process for reviewing the adequacy of *any operator’s* internal performance measures regarding persons performing locating services and quality assurance programs.”**

Once training programs are established (see [Element 4](#)), their effectiveness and the level of training and knowledge and the implementation of appropriate procedures by affected employees can be evaluated to identify where improvements are needed. To do this, an operator needs to have performance measures against which the program effectiveness and individual performance can be evaluated.

To address Element 3, facility operators can develop and implement a process that contains the following attributes. Input could be provided by the participating stakeholders as appropriate.

Operators can:

- Establish minimum training and qualification requirements for persons performing locating services. This may affect both in-house and contract locating personnel. Operators can establish minimum training and qualification requirements for contract locators through contract mechanisms. In some cases, this attribute may be required by regulatory agency rulemaking, orders or directives.
- Establish relevant performance metrics, verify that meaningful measurement is possible, and monitor and evaluate performance of locators against those metrics.
- Establish feedback mechanisms to inform locators of their performance.
- Establish requirements for resolution of locator performance issues, such as retraining, evaluation of process change or re-evaluation of staffing levels.

- Establish programmatic performance metrics and establish a process and requirements to periodically evaluate both the locating and quality assurance programs against those metrics and identify needed changes.
- Conduct regular field audits of both in-house and contract locators and take action when necessary. Training programs and, perhaps employee qualifications, can be reviewed in response to increasing trends relative to performance complaints, near misses or damage incidents and, if necessary, in response to specific incidents.
- Regularly meet with contract locating senior management to review results.

## Element 4 – Partnership in Employee Training

---

Element 4 is stated in the PIPES Act as:

*“Participation by operators, excavators, and other stakeholders in the development and implementation of effective employee training programs to ensure that operators, the one-call center, the enforcing agency, and the excavators have partnered to design and implement training for the employees of operators, excavators, and locators.”*

**Partnership in training ensures that all concerns and issues among participating stakeholders are considered.**

In this regard, consideration could be given to the establishment of a training committee of stakeholders to discuss and evaluate training needs, review training curriculums and, perhaps, maintain a training calendar.

One-call centers can participate in promoting and providing training in the one-call process to locators, excavators and other stakeholders. Similarly, and as appropriate, operators, locators, and excavators can assist in training one-call center employees by demonstrating the critical role they play in damage prevention and to identify one-call process problems. Also, as appropriate, the state regulatory agencies can support and participate in stakeholder training.

Operators can develop and implement programs to train excavators and locators on specific relevant locating and excavating requirements and CGA Best Practices. Such training can provide specific education regarding the operator's systems, including operator contact information and the appropriate use of dialing 811 and 911. Operators can encourage, provide or require through contract mechanisms regular refresher training for contract locators and excavators. Operators can also encourage excavators and developers to call for pre-construction meetings when appropriate and identify situations when such meetings are required.



Other considerations related to training for the employees of operators, excavators, and locators might include:

- Stakeholder training programs, and perhaps employee qualifications, are reviewed in response to increasing trends relative to performance complaints, near misses or damage incidents and, if necessary, in response to specific incidents.

- Stakeholder field representatives (state regulating agency, one-call center, operators, locators, excavators) endeavor to increase public education and, if appropriate, provide field education anytime opportunities arise.
- Consideration could be given by state regulatory authorities of reducing penalties in enforcement actions against violators in exchange for implementing enhanced training with measured effectiveness.

## Element 5 – Partnership in Public Education

---

Element 5 is stated in the PIPES Act as:

*“A process for fostering and ensuring active participation by all stakeholders in public education for damage prevention activities.”*

***Education and communication have been shown to be most effective at underground damage prevention.***

Effective public education programs are vital to continue to make improvements in damage prevention. A process that promotes outreach to and active participation by all stakeholders in public education efforts is important to ensure overall program effectiveness. Research shows that a message must be heard multiple times for it to effectively register with an audience. Coordinated efforts to effectively and efficiently communicate repetitive and consistent messages to target audiences, particularly during excavation seasons, are likely to have the most impact.



**Damage Prevention  
is a Shared Responsibility.**

Stakeholders may consider combining their efforts and resources in public education programs. An enterprise approach can enable stakeholders to both take advantage of scale and maximize program effectiveness. For example, many one-call centers use a committee of stakeholders (e.g., a one-call board) to evaluate and recommend educational methods and materials to be used. Public education methods generally consistent with CGA best practices may be most effective.

Any and all available means to affect public outreach and improve damage prevention awareness may be considered. This can include, for example:

- Using news media, direct mailings, promotional giveaways, contractor association newsletters, stakeholder websites;
- Using operator, excavator, State DOT and other stakeholder vehicle fleets as rolling billboards;
- Affixing recognizable messages to field equipment (meters, above ground facilities, LNG tanks, pedestals, transformers, etc.);

- Adding visible information to construction plans, permits;
- Performing outreach to stakeholder groups that often may get overlooked, such as: homeowners associations, landscaping contractors, plumbers, logger's association, farmers, agricultural associations and others; and
- Training and using field representatives (operators, locators, excavators) to promote and provide education and awareness anytime an opportunity is presented.

It is best if public education programs are monitored and evaluated to ensure they are being implemented effectively and in accordance with the program plans. Program evaluations can determine program effectiveness and identify where and how a program should be adjusted for improvement.



## Element 6 – Enforcement Agencies’ Role to Help Resolve Issues

---

Element 6 is stated in the PIPES Act as:

*“A process for resolving disputes that defines the State authority’s role as a partner and facilitator to resolve issues.”*

***Fair and equitable enforcement of the law is crucial to effective stakeholder support.***

Evaluation of a state’s damage prevention program may test whether the state is presented through law as the statutory authority for review and resolution of related issues. However, it is probably best if enforcement of the laws is seen as fair and equitable to all stakeholders. An effective enforcement program should foster stakeholder support in all phases of the damage prevention program.

As an example, some states enforce their damage prevention laws through a review of damages and violations by a balanced committee of stakeholders. The recommendations of these committees are then reviewed by the enforcing agencies. These committees provide essential expertise and work together with one goal in mind – prevention of damage to facilities. In these cases, the state enforcing agencies can be seen as a partner and facilitator to issue resolution.

## Element 7 – Fair and Consistent Enforcement of the Law

---

Element 7 is stated in the PIPES Act as:

*“Enforcement of State damage prevention laws and regulations for all aspects of the damage prevention process, including public education, and the use of civil penalties for violations assessable by the appropriate State authority.”*

***Effective enforcement leads to more effective damage prevention programs.***

As with Element 6, evaluation of a state’s damage prevention program could begin with a test of whether the state is presented through law as the statutory authority for review and resolution of related issues. Further, the stakeholders looking to improve the state’s damage prevention program could consider whether the state authority is enforcing the laws in a manner that is considered effective, addresses all aspects of the damage prevention program, and includes the assessment of civil penalties, as appropriate, for violations.

Some characteristics of good enforcement programs are noted in the CGA Best Practices and include:

- Enforcement is applied consistently.
- Enforcement is seen as fair and equitable to all stakeholders.
- The enforcement process is accountable to assure its credibility.
- The enforcement program is transparent to all stakeholders.
- Application of appropriate enforcement is based on the severity of the violations, the significance of events, past behavior of the at-fault parties and their willingness to change behavior.
- The use of remediation measures such as training, helping with public education, use of technology, funding R&D, etc. is considered in lieu of or to reduce fines.
- Incentives are used to encourage compliance, such as the use of performance credits and education credits.

## Element 8 – Use of Technology to Improve the Locating Process

---

Element 8 is stated in the PIPES Act as:

*“A process for fostering and promoting the use, by all appropriate stakeholders, of improving technologies that may enhance communications, underground pipeline locating capability, and gathering*

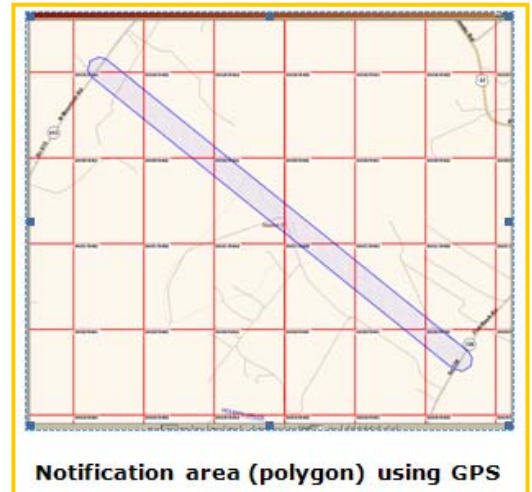
*and analyzing information about the accuracy and effectiveness of locating programs.”*

***All stakeholders in the one-call process benefit from the use of enhanced technology.***

Stakeholders may consider, as appropriate, collectively evaluating available technologies to determine where application thereof could be feasible and would provide effective improvements in the one-call damage prevention process. Improvements in technologies can include new developments in hardware and software, or simply improvements in processes. Technology improvements can, perhaps, be realized in many areas. Examples may include:

- Use by facility operators of best available encroachment and damage detection technology, such as acoustic monitoring and fiber optic detection.
- Use by facility operators of improved mapping technologies to enable more accurate, timely and up-to-date facility location data to be provided to one-call centers and locators. This could include the use of GPS coordinates and making maps available electronically via CD-ROM/DVD or electronic file transfer.
- Development and use by the one-call center of more accurate and up-to-date base maps. This could include the use of accurately aligned digital ortho-photographic mapping layers.
- Use by the one-call center of enhanced technology to receive, process and transmit ticket information. This could include recent technology improvements such as:
  - ❖ Enabling the use of GPS coordinates by excavators to electronically white-line an excavation area;
  - ❖ Allowing and promoting the use of web ticket entry;
  - ❖ Improving the one-call call center with up-to-date communication equipment/devices, base maps, and backup systems; and
  - ❖ Ensuring the use of methods and processes consistent with CGA best practices.

- Use by excavators of available technology to provide more accurate excavation information to the one call center, such as using GPS coordinates to electronically white-line the excavation area and the use of web ticket entry processes.
- Use by locators of advanced technology to accurately locate facilities and prepare associated documentation. This could include the use of GPS devices to produce electronic manifests.



The use by excavators of improved technology to dig safely, such as soft digging, vacuum excavation and water boring, is not directly related to the one-call locating process. However, these technologies can be utilized to gather and analyze information about the accuracy and effectiveness of locating programs and can effectively help prevent damage.

## Element 9 – Data Analysis to Continually Improve Program Effectiveness

---

Element 9 is stated in the PIPES Act as:

*“A process for review and analysis of the effectiveness of each program element, including a means for implementing improvements identified by such program reviews.”*

***Data analysis provides useful insights into program effectiveness and needed improvements.***

To evaluate the effectiveness of the damage prevention program, appropriate performance data must be collected and analyzed on a regular basis. Data collection requirements should likely be identified that pertain to all aspects of the damage prevention program. Some data may be seen as more critical than other in determining program effectiveness. Hard statistical data, such as number of incidents, number of violations, ticket numbers, etc., is often seen as the most important. However, anecdotal information can also be revealing. On the border between statistical data and anecdotal information is relevant data that may be gathered from stakeholder surveys.

Needed data may be difficult to acquire at times due to the reluctance of stakeholders to report. Steps can be taken, as appropriate, to ensure the required confidentiality and propriety of data. This can often be done by aggregating data in secure databases so that the source of individual data is obscured.

Data can be sought and evaluated for each of the nine elements of an effective damage prevention program. Stakeholders can develop and implement a process so that the effectiveness of each program can be reviewed periodically. The process should include a means for determining, developing and implementing needed improvements. For example, consistent reporting and complete analyses of damage, leakage, and incident data could identify root causes of damage, parties most often responsible for the damages, and other useful trends. Such analyses can be used to drive process changes, support enforcement actions, and justify amending laws, rules, regulations, procedures. The results of such analyses can also be used to properly allocate limited resources to focus on the specific areas where needed and establish benchmarks for all stakeholders to meet.



Two sources of data regarding jurisdictional pipelines that could possibly be utilized are the CGA's Damage Information Report Tool (DIRT) and the DOT's Annual Report for Distribution Operators (PHMSA Form F7100.1-1). Currently, use of the DIRT ([www.cga-dirt.com](http://www.cga-dirt.com)) is voluntary in most states.

## Appendix A: Integrity Management for Gas Distribution Pipelines (DIMP)

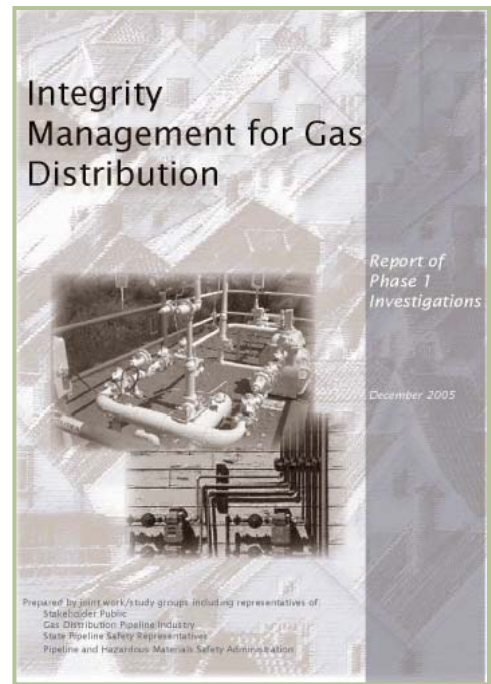
### Report of Phase I Investigations

The nine elements of effective damage prevention programs were developed during a study conducted under PHMSA's Distribution Integrity Management Program (DIMP). The study collected and analyzed available information to reach findings and conclusions to inform future work by PHMSA relative to implementing integrity management principles for gas distribution pipelines. The study report, Integrity Management for Gas Distribution: Report of Phase I Investigations, was published in 2005.<sup>4</sup>

Four multi-stakeholder work/study groups were established to conduct the DIMP Study and contributed to development of the study report. The groups included representatives of the stakeholder public, public safety advocates, local gas distribution companies, municipal gas distributors, gas pipeline trade associations, state pipeline safety representatives and regulatory agencies, and PHMSA.

The report identified that the study groups reached the following key findings:

- Excavation damage poses by far the single greatest threat to gas distribution system safety, reliability and integrity; therefore excavation damage prevention presents the most significant opportunity for gas distribution pipeline safety improvements.
- States with comprehensive damage prevention programs that include effective enforcement have a substantially lower probability of excavation damage to pipeline facilities than states that do not. The lower probability of excavation damage translates to a substantially lower risk of serious incidents and consequences resulting from excavation damage to pipelines.
- All stakeholders must participate in the excavation damage prevention process [for the process to be effective].
- A comprehensive damage prevention program requires that the nine elements, later embodied in the PIPES Act, be present and functional for the program to be effective.



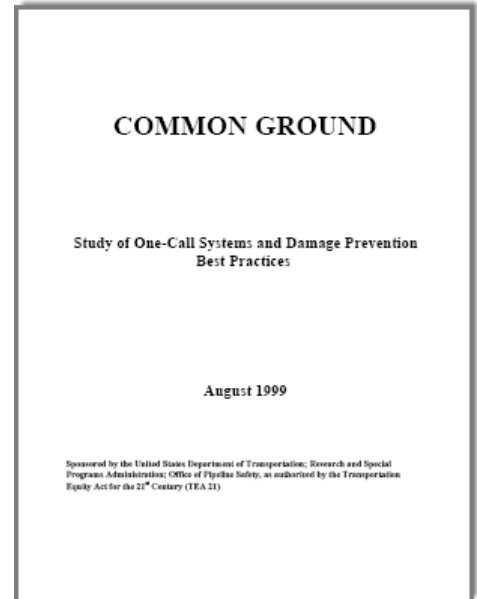
<sup>4</sup> The report may be found online at [http://www.cycla.com/opsiswc/docs/S8/P0068/DIMP\\_Phase1Report\\_Final.pdf](http://www.cycla.com/opsiswc/docs/S8/P0068/DIMP_Phase1Report_Final.pdf)

## Appendix B: Models of Cooperative and Collaborative Partnerships

Cooperative partnerships can be very effective in addressing solutions to common problems. Successful cooperative efforts were demonstrated in the Common Ground Study<sup>5</sup> and the DIMP initiative (see Appendix A).

The Common Ground Alliance<sup>6</sup> is an effective model of collaborative stakeholder participation that has also produced benefits in improving damage prevention.

On a local level, but equally effective, the many CGA Regional Partnerships demonstrate use of the collaborative CGA model. These existing regional damage prevention groups have invaluable knowledge and experience and continue to make great strides in preventing excavation damage to America's infrastructure.



### Speaking with One Voice

A cooperative partnership of stakeholders created within the state to evaluate the state damage prevention program could evolve into an ongoing collaboration to support all phases of an enhanced and effective program.

Generally, a partnership will be more effective if it marshals the cooperative efforts of and represents the concerns of all damage prevention stakeholders in the state. Stakeholders may want to identify a champion or multiple champions – representatives to challenge the excavation damage prevention stakeholder community to come together within the state to affect change.

An adequate number of stakeholder advocates will help to effectively promote change. A collaborative group having one voice will have a more significant impact and ability to promote change than multiple voices promoting similar or, perhaps, not-so-similar approaches. State legislatures, regulatory authorities and other stakeholders will be more prone to hear and act on a valid and consistent message driven by a collaborative effort broadly representing a larger segment of multiple stakeholders. Conversely, multiple smaller advocacy groups promoting, perhaps, different changes or different approaches to developing or enhancing the state damage prevention program could very well undermine stakeholder confidence in the process.

<sup>5</sup> COMMON GROUND: Study of One-Call Systems and Damage Prevention Best Practices. August 1999. Sponsored by the United States Department of Transportation; Research and Special Programs Administration; Office of Pipeline Safety, as authorized by the Transportation Equity Act for the 21st Century (TEA 21).

<sup>6</sup> [www.commongroundalliance.com](http://www.commongroundalliance.com)

It is important that the individual stakeholders participating in the partnership be recognized representatives of a larger stakeholder segment. Also, it is critical that a consensus process be used as necessary to achieve agreement among the participating stakeholders. Participating stakeholders must be willing and enthusiastic in supporting the collective goals and working toward achieving those goals.

## **Symbiosis with Regional CGA Partnerships**

In the majority of States, damage prevention stakeholders have already formed Regional Partnerships with the Common CGA.

Through the CGA Regional Partner Program, existing local, regional and state damage prevention programs have an objective of promoting communication among all stakeholders about damage prevention Best Practices. The CGA has only two requirements for its Regional Partners:

- A primary objective should be to promote communication about damage prevention Best Practices.
- The Regional Partner must agree not to exclude any stakeholder group from their discussions.

CGA Partnerships:

- Promote the adoption of the CGA Damage Prevention Best Practices within local communities as well as on a national level.
- Strengthen the communication between national, regional, state, and local levels of damage prevention initiatives.
- Encourage promotion of damage prevention among stakeholders in local areas, and provide the opportunity to attend programs, conferences, and meetings locally.
- Provide national support and visibility to stakeholders joining in local discussions. This strengthens existing groups by helping to recruit stakeholders who may not currently participate in local damage prevention discussions.
- Promote more widely accepted damage prevention practices, procedures, methods, and tools. This gives a regional damage prevention group the ability to influence other stakeholders in areas of continual improvement and damage prevention, and it will strengthen the group's ability to affect change at both state and national levels.

Stakeholders aiming to improve their state damage prevention programs to include the nine elements identified in the PIPES Act can investigate interest by an existing CGA Regional Partnership in working hand-in-hand to foster change.



The CGA Regional Partnerships are already visibly recognized as strong advocates of damage prevention. They already involve many of the same stakeholders that would have an interest in strengthening the state damage prevention program. Many of them are likely to already use a consensus process in getting agreement among the participating stakeholders.

## **Taking the Lead**

Someone must take the lead if a collaborative partnership of damage prevention stakeholders is to be organized and established. As noted above, stakeholders may want to identify a champion or multiple champions to promote the cause of strengthening the state damage prevention program.

Some have suggested that representatives from the appropriate State Regulatory Authority will be critical to the program improvement effort and, therefore, may be the logical organization to take the lead. This could have some merit in that developing an effective damage prevention program that embodies the nine elements could involve changes to existing State damage prevention laws and regulations. It also reflects the consideration that it must be a State authority that applies for a PHMSA damage prevention program grant.

However, strengthening the state damage prevention program could also and just as well involve changes in processes and procedures affecting the way specific damage prevention stakeholders interact and conduct business. Whoever takes the lead must initiate efforts to reach out to other stakeholders to gain their support for and participation in the collaborative partnership.

It is important that the participating stakeholders be representative of a larger stakeholder segment, be willing and enthusiastic in supporting the partnership's goals and work toward achieving those goals. The participating stakeholders can collectively and collaboratively lead the effort to improve the state damage prevention program.

All damage prevention stakeholders could be affected by any new or enhanced State Damage Prevention Program requirements once such a program is established. An effective program will require that the dialog and collaboration established among these stakeholders continue. This will serve to ensure continuous monitoring, evaluation and improvement in the program.