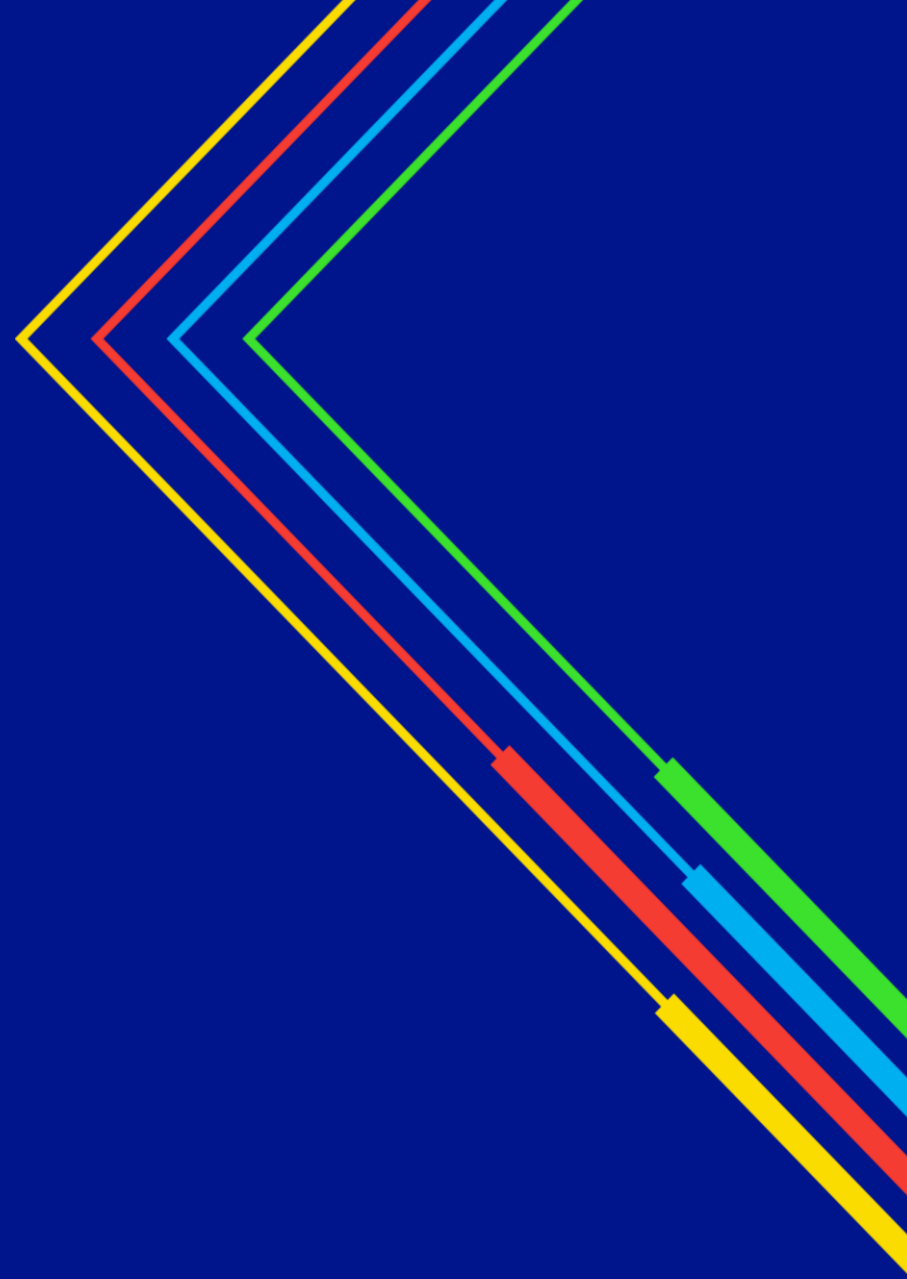


# Excavator Public Safety Awareness and Damage Prevention

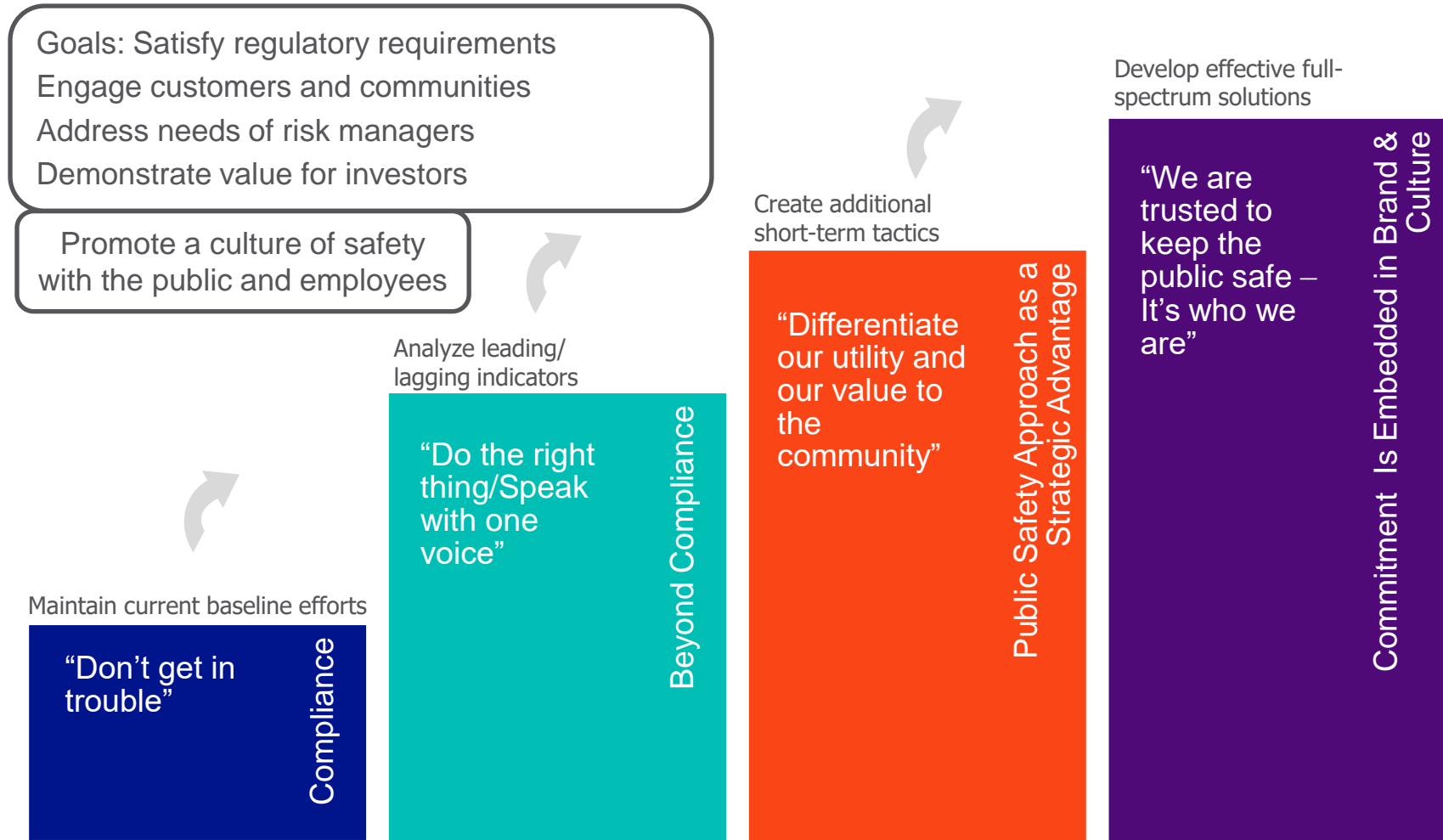
Continuous Improvement for  
Stakeholder Engagement and  
Damage Prevention

Lee Westerlind  
Manager Stakeholder Engagement &  
Pipeline Safety Management

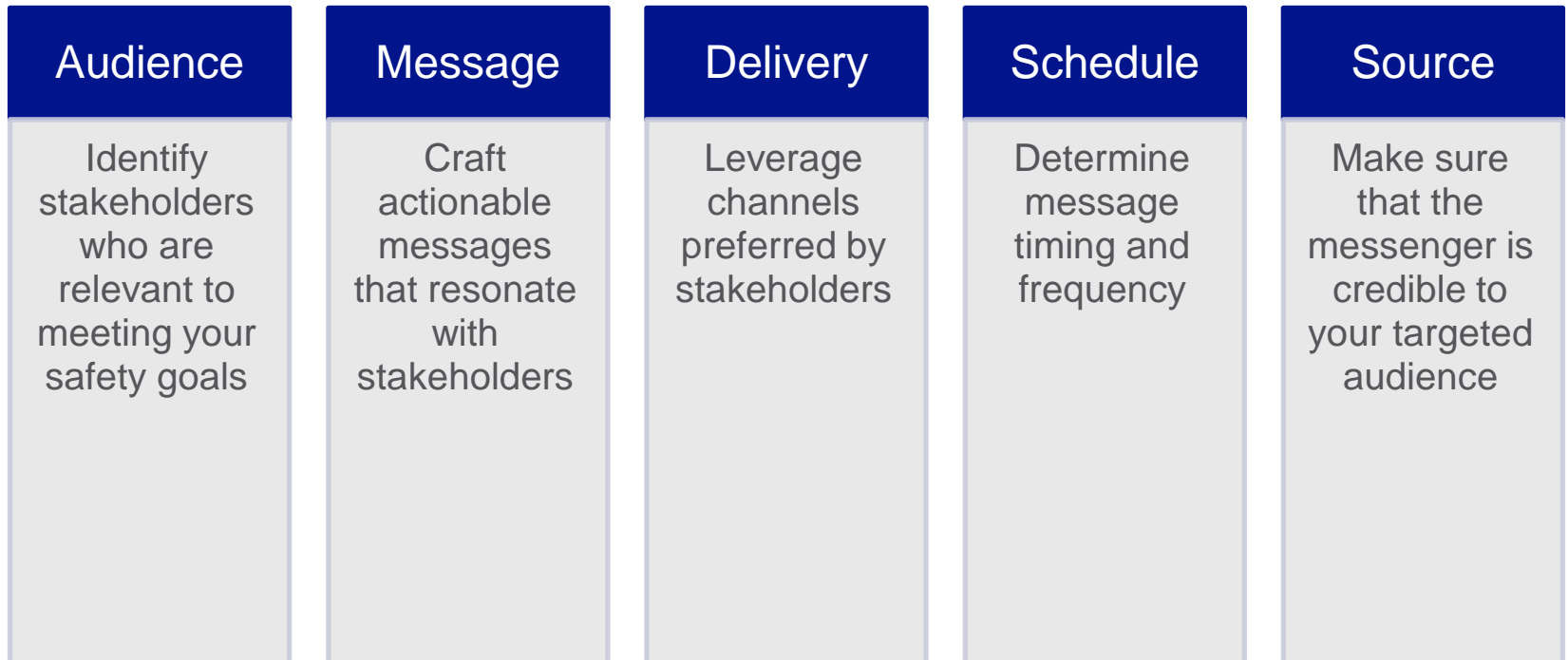
nationalgrid



# Integrated campaign for public awareness and damage prevention



# Implement customer-centric approach to public safety and damage prevention





# Step 1: Baseline compliance

## Maintain accuracy and demonstrate compliance.

We regularly analyze our messaging and align with our objectives as well as with the needs and expectations of stakeholders, policy makers, and regulators to ensure we're meeting

**nationalgrid**  
Excavator safety near underground natural gas pipelines  
Use the poster for employee training

**Smell Gas, Act Fast.** In a gas emergency, call 811 and National Grid 24 hours a day, 7 days a week. Update New York, 911 and 1-800-982-2345.

**Help protect natural gas pipelines**

- National Grid pipelines deliver natural gas safely and reliably to homes and businesses across New York, Massachusetts, and Rhode Island. We regularly inspect and repair our pipelines and take preventive actions and conduct routine maintenance.
- Placing natural gas pipelines in the ground can sometimes, when a long gouge, scratch, dent or crease to a gas pipe or its coating may cause a leak that could lead to a catastrophic fire or explosion.
- The greatest risk to gas pipelines is excavation damage during excavation. We need your help to prevent pipeline damage and reduce the risk of dangerous natural gas leaks.

**Notify 811, and dig with care**

- State law requires you to call Dig Safety before you dig an trench or install at least two full working days before any excavation starts, including the date of your call, weekends and legal holidays.
- This free service will arrange for marking of buried natural gas lines and other utilities so your work is safe distance away from them. Call 811 or 1-800-982-7862 | [811.ny.gov](http://811.ny.gov)
- Before you dig, identify your pipeline with white paint, flags and/or stakes.
- Wait the required time for utilities to locate and mark their lines before you dig.

**If you contact a natural gas pipeline and/or suspect a gas leak, assume there's a danger:**

- Leave equipment, do NOT turn off engines or generators. Warn others.
- Do NOT use matches, lighters or anything electrical - even a phone. A phone could ignite a gas leak.
- Do NOT operate underground pipelines valves or stop the flow of gas. Leave the excavation open.
- From a safe location, call 811 and National Grid immediately. Even if there is no visible damage to the pipes. (Excavators are required to call 811 before excavating.)
- Report the incident to your supervisor.
- Stay away from the area until National Grid personnel say it's safe to return.

**Watch out around pipeline markers**

- High-visibility markers with National Grid's 24-hour emergency phone number indicate the general location of our high-pressure natural gas pipelines.
- If you notice any type of suspicious activity near a pipeline marker or you spot a marker that has been damaged, call National Grid immediately at the number listed on the marker.
- For security purposes, these markers do not show the exact location, path, depth or number of gas pipelines in the area. In addition, pipelines may not follow a straight course between markers.
- Never use the other markers or flags as substitutes for contacting 811 to locate and identify your dig site location and marked.

**Respond safely to natural gas emergencies**  
Keep this card handy in your vehicle, near or above you.

**Gas leak signs:** A gas leak may have a distinctive, sulfur-like odor (but not always). Other signs may include a hissing, whistling or roaring sound; dirt blowing off the ground; bubbling in water; dead or dying vegetation (in an otherwise moist area); or near a pipeline, an exposed pipeline after a fire, flood or other disaster; or a damaged connection to a gas appliance.

- Leave equipment, do not turn off engines or generators. Warn others and leave the area quickly.
- Do not use matches, lighters or anything electrical - even a phone. A phone could ignite the gas.
- Do not operate underground pipeline valves or stop the flow of gas.
- From a safe location, call 811 and National Grid immediately. (Excavators are required by law to call 811 before excavating.)
- Report the incident to your supervisor.
- Stay away from the area until National Grid personnel say it's safe to return.

**Smell Gas, Act Fast. 811**

In a gas emergency, call 811 and National Grid 24 hours a day, 7 days a week. Update New York, 911 and 1-800-982-2345.

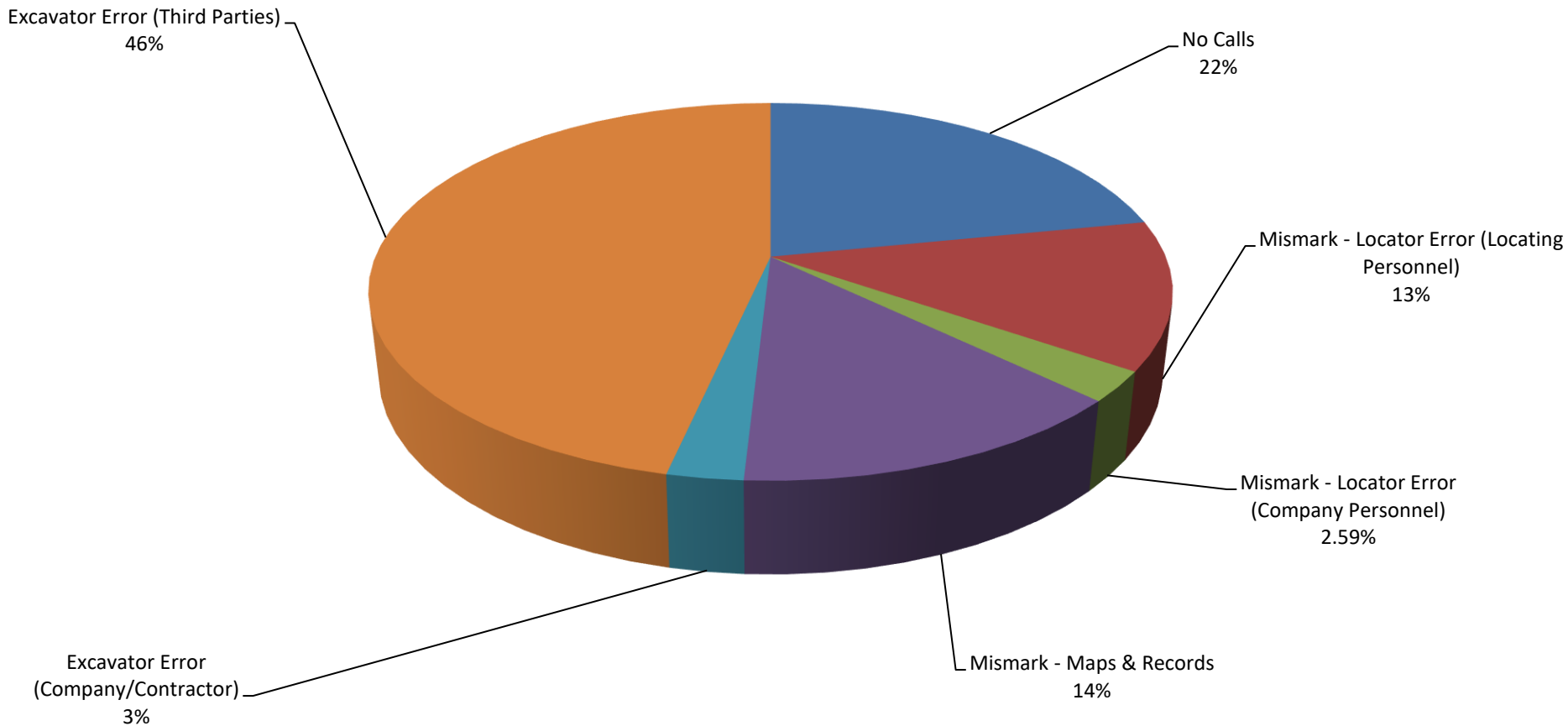
Call 811 and National Grid if you suspect a gas leak or if you make ANY contact with a natural gas line, even if you just nick the pipeline or damage its coating.

## Key

- Pipeline purpose and reliability
- Pipeline location information (pipeline markers)
  - Include photos/illustration
  - Phone number for emergency
  - General location of pipeline only
  - Where they are found
  - Encourage one-call notification
- Awareness of hazards and prevention measures undertaken
  - Products transported and potential hazards
  - Measures taken to prevent or mitigate risks (pipeline maintenance, monitoring, etc.)
  - Preventive measures to help assure safety and prevent incidents (safety education, participation in 811, etc.)
- Damage prevention awareness
  - One-call requirements, including consequences of not calling
  - Align with Common Ground Alliance's safe digging guidelines, including tolerance zone
  - Need to report threats or suspected damage to pipelines
- Gas leak/damage recognition and response
  - Gas leak recognition, including smell, sight, and sound
  - Gas leak response
  - Emergency reporting information
- How to get additional information
  - Company contact and response information
  - Resources for additional safety education

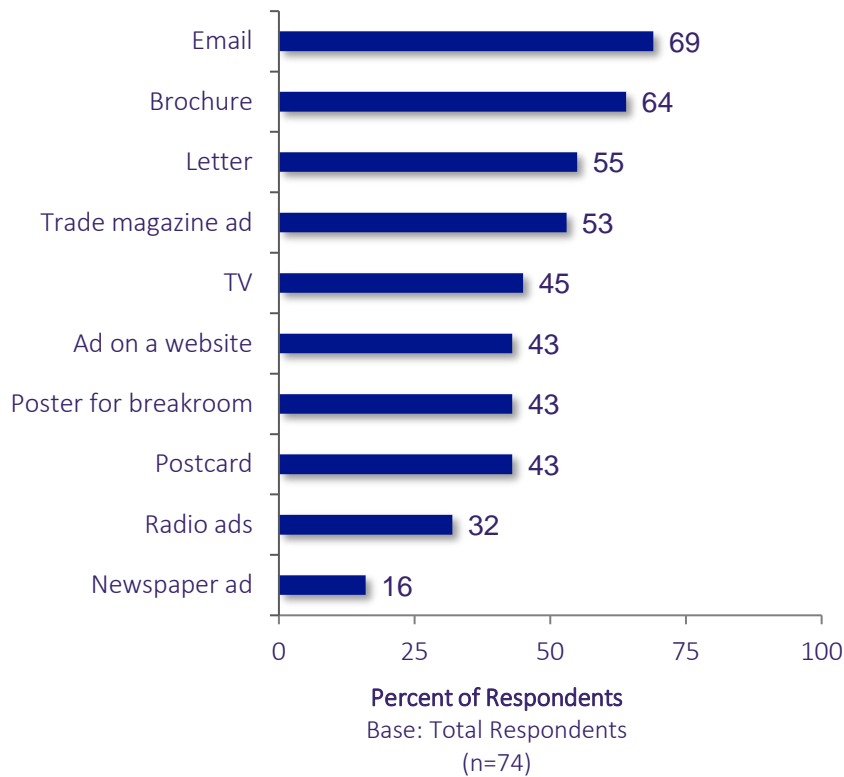
# Step 2: Analyze damages and root causes to identify low-hanging opportunities

## New York State Root Cause Breakdown 2019

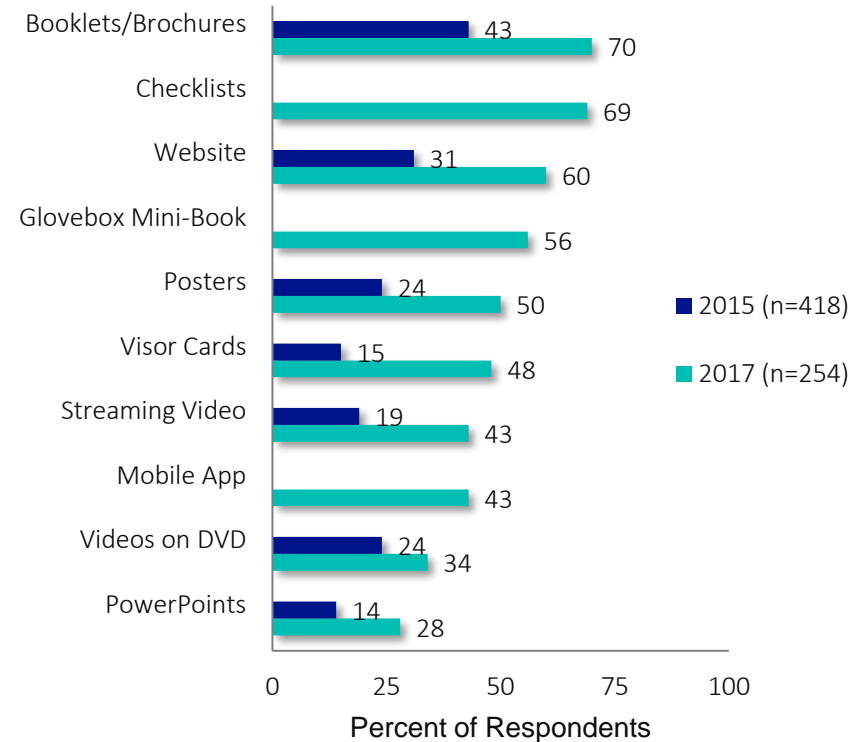


# Step 2: Research public safety risk indicators to help support the strategy

## How Respondents Prefer to Learn About Availability of Online Safety Information



## Preferred Detailed Safety Training Formats



(Source: National Grid effectiveness research results, 2016 to 2018)

# Step 3: Use data to improve short-term communications and messaging tactics

**Develop additional segmented communications based on risk analysis and end-user preferences**

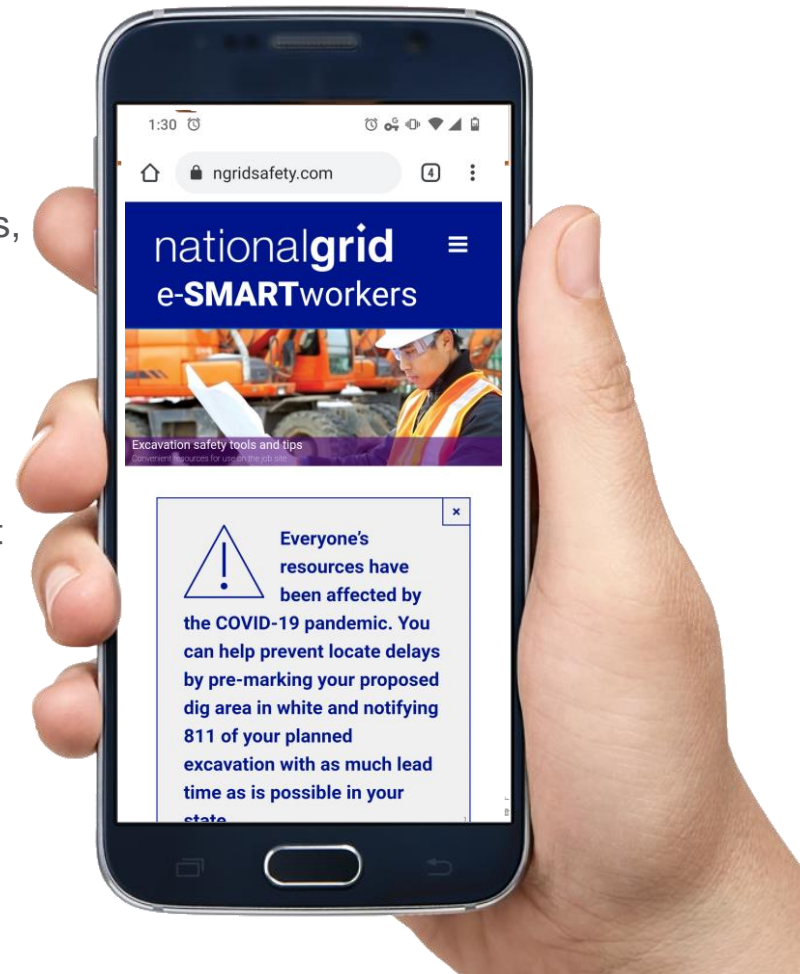
**Disseminate communication through known effective channels:**

- Segment-specific mailings (Geography; Worker Type: Tree Workers, Agricultural Workers, Cross Bore, First Responders, etc.)
- Email Tips of the Trade to reinforce key messages
- Upgrade existing website resources with additional content
- Brand-align supplemental training materials
- Employee resources and in-person stakeholder engagement

**Collect ongoing feedback from end-users through:**

- On-the-ground activities by employees
- Telephone follow-up calls
- Integrated email survey

**Plan for long-term, full-spectrum solutions**





# Step 3: Enhance regional excavator safety awareness materials

## Data-driven opportunities for improved public awareness outreach:

- Special educational tools for excavators in the Cape Cod region, reducing damages
- Regionally focused checklists and local 811/one-call wait times
- Additional damage prevention educational resources for larger excavator organizations

**Excavator Safety**

**Employee training materials on natural gas pipeline safety enclosed**

Protect yourself, your crew and the public. Urge your employees to follow the enclosed safety tips when they work around underground natural gas lines.

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**Massachusetts and Rhode Island Safe Excavation Checklist**

Use this checklist as your step-by-step guide to help to underground natural gas pipelines, electric power lines and other utilities.

1. Locate marks may not be accurate. If you cannot visually verify stop work and notify 811 or the facility operator.
2. If you encounter an unmarked line, stop digging and notify 811. Always assume lines are in use and present a potential hazard.
3. If you scrape the coating on a gas pipe or cut a tracer wire, stop work immediately. Exposed gas lines can cause the line to fail in the future.
4. Once a natural gas pipeline has been exposed, excavate an area around the pipe that will not damage the pipe or its coating. See specific backfill rules.
5. Use special care to protect cast-iron pipelines from damage. If a pipe is exposed or falls within an excavation trench's angle of repose, backfill immediately.
6. If your equipment contacts a power line, notify 811 and stop work immediately. Do not touch the equipment or the power line. Call 911 if anyone is injured.

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**Massachusetts and Rhode Island Safe Excavation Checklist**

Use this checklist as your step-by-step guide to help prevent dangerous and costly damage to underground natural gas pipelines, electric power lines and other utilities.

Supervisor: \_\_\_\_\_ Site location: \_\_\_\_\_  
Job number: \_\_\_\_\_ 811 ticket number: \_\_\_\_\_

1. State law requires you to call 811 or make an online request for utility locates at least 72 hours before any excavation starts, excluding weekends and legal holidays. At no cost to you, Dig Safe® will notify member underground facility owners in the immediate area so the location of buried lines can be marked prior to excavation. Allow more time for long, involved projects.
  - Massachusetts: Call 811 or 1-800-DIG-SAFE (344-7233) | digsafe.com
  - Rhode Island: Call 811 or 1-800-DIG-SAFE (344-7233) | digsafe.com
2. Notify facility owners who are not members of Dig Safe about your excavation and request locates directly from them. Dig Safe can provide a list of these owners.
3. Before notifying 811, pre-mark your dig area with white paint, flags and/or stakes, so locators can more easily identify and mark affected utilities. Document your markings with photos or video.
4. Retain your ticket number and related documentation. Keep this proof of compliance handy at the job site in case of emergency.
5. If you will be working within 15 feet of a high-pressure natural gas transmission pipeline or other critical utility. Prior to digging, you are required to attend an onsite meeting and/or have contact with qualified National Grid representatives to help reduce the risk of excavation-related damage. National Grid MRSI fee onsite during 811 excavation.
6. Check the site on your planned excavation date to confirm that your entire requested dig area has been located. Look for aboveground signs of utilities that have not been marked, such as meters, pipeline markers, valves, pad-mounted transformers, etc. Also check for signs of something buried after the locate was completed, such as a fresh trench. If you find unmarked facilities, do not begin work. Call 811.
7. Begin excavation within 30 calendar days of your locate request, or your ticket will expire. Contact 811 if the excavation will be delayed.
8. Maintain the marks. You are responsible for maintaining locate marks until your excavation is complete. Document marks with photos or video before you dig. If marks fade or are destroyed, call 811 to request a new ticket so the area can be located and marked again. Stop work until the relocates are done.
9. Respect the tolerance zone. Do not use mechanical excavation equipment within the "tolerance zone," which equals the width of a marked utility plus 18 inches from each indicated outside edge. For your safety, use ONLY hand tools within this zone.
10. Visually verify the location and depth of a marked utility line by carefully digging.

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**Updated 811 wait times — updated April 2019**

schedule your dig in Massachusetts and Rhode Island.

Before you dig, excluding weekends and legal holidays. Do not dig until all utility lines have been marked.

	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri
Standard Dig	Ready 811 (10 AM)	Ready 811 (10 AM)	Unavailable	Unavailable	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)
Standard Dig (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Unavailable	Unavailable	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)
Standard Dig (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Unavailable	Unavailable	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)
Standard Dig (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Unavailable	Unavailable	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)	Ready 811 (10 AM)

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# Step 3: Target stakeholders who are at greater risk

Our research demonstrated a greater need for gas service warnings in downstate New York among stakeholders who deal with the permitting and performance of demolition and/or renovation work

Targeted audiences include landlords, developers, demolition contractors, permitting offices, and the like

Outreach involved both direct mail and digital/social media outreach

Approximately 20,000 touch points annually

In development: Long Island renovation/demolition best practices case study

Natural gas service must be disconnected during demolition and major renovation



New York's local building departments and National Grid are critical partners in protecting lives, property and our community.

To ensure projects proceed safely, direct contractors and property owners planning demolition or significant renovation, including building elevation or additions, to contact National Grid to properly disconnect natural gas service before they begin work.

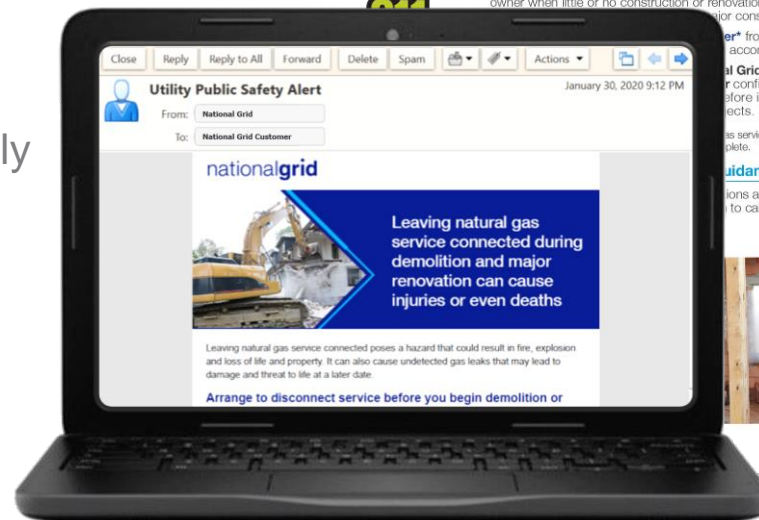
Leaving natural gas service connected poses a hazard that could result in fire, explosion and loss of life and property, or at a later date, could lead to damage and threat to life from undetected gas leaks.

#### Critical steps for contractors and property owners

Direct contractors and property owners planning demolition or significant renovation to take these steps:

- **Contact National Grid 30 to 45 business days before beginning work** to apply to have natural gas service disconnected properly and have the meter removed. The owner or contractor should call National Grid's Customer Service Center at **1-800-930-5003** to speak with a representative about the scope of the project and get the required application form.
- **Be clear about the scope of work.** It is not enough to request a simple shut-off of the gas when major work is planned. Shut-off is for transition to a new resident/owner when little or no construction or renovation is involved. It is not safe to leave major construction underway.

Assuring that natural gas service has been disconnected before work can safely begin is the shared responsibility of everyone involved with the project.



er\* from National Grid confirming that accomplished.  
Grid urges all building departments r confirming that the natural gas service store issuing building permits for ects.  
is service line and obtain the Disconnect Letter, plote.  
**Guidance**  
ions about natural gas service when to call National Grid's Customer



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# Step 3: Enhance regional excavator safety awareness

## Identify additional resources that improve message retention and promote safe behaviors

Quarterly “Tips of the Trade” damage prevention/safe excavation emails

Distributed to about 16,000 stakeholders

Topics include:

- Safe use of trenchless technology
- Working safely near cast iron pipes
- 5 steps for safe demolition
- Safe digging laws and regulations
- Working safely in winter storms

17 topics currently...and growing!

National Grid Damage Prevention Tips - Message - Mail

Reply Reply all Forward Archive Delete Set flag

National Grid Damage Prevention Tips

**nationalgrid**

**Tips of the trade**  
Pipeline safety

### Using trenchless technology safely

Welcome to National Grid's Tips of the Trade. National Grid is committed to your safety, and these tips are intended to help you work safely near our facilities. Please review these tips with your coworkers at your tailgate or toolbox meetings before work begins.

**Please help us improve our safety tips to meet your training needs. Take our two-minute survey.** [Take survey](#)

Using a directional drill, auger or other form of trenchless technology is like threading a large needle through a maze of existing underground utilities – while blindfolded! Subterranean smarts and safe drilling practices are keys to success.

#### Subterranean smarts

Notifying 811 before you dig is always essential, but you must take it a step further when you use trenchless technology:

- **Inform the 811 center about your equipment.** Make sure to specify you will be using directional boring/drilling technology.

# Step 3: Focus on key issues: Cast iron pipelines

## National Grid operates one of the oldest utility systems in the northeast

We educate excavators and policy makers about the risks, as well as about our ongoing program for upgrading infrastructure

Utility public safety awareness initiatives increase awareness among all stakeholders of the value of the company's infrastructure improvement initiatives

### Working safely near cast iron pipes

#### Cast iron pipes need special protection

Cast iron natural gas pipelines are the grandfathers of the natural gas distribution system. They've worked hard and done their job well for generations, but now across the country, cast iron natural gas pipelines are being replaced by steel and plastic. At National Grid, we are replacing more than 5% of our cast iron natural gas mains every year, but there are still 4,228 miles left in the system. We need your help protecting these old workhorses until they can be retired.



#### Cast iron gas mains are brittle and vulnerable to damage when the earth around or near them is moved in any way



When your excavation encroaches on a cast iron natural gas main by crossing beneath its path or running parallel nearby, special circumstances apply.

Notify National Grid via the 811 ticket immediately when you determine that your excavation might encroach on a cast iron gas main. National Grid gives top priority to cast iron gas mains that are affected by construction activities and provides the following services AT NO COST TO YOU:

1. A National Grid representative may be present during the excavation and fill

# Step 4: Enhanced and engaging damage prevention education



<https://ngridssafety.com/when-it-comes-to-811-theres-no-kidding-around/>

# Step 4: Employee-engagement tactics that embed public safety awareness, brand, and culture

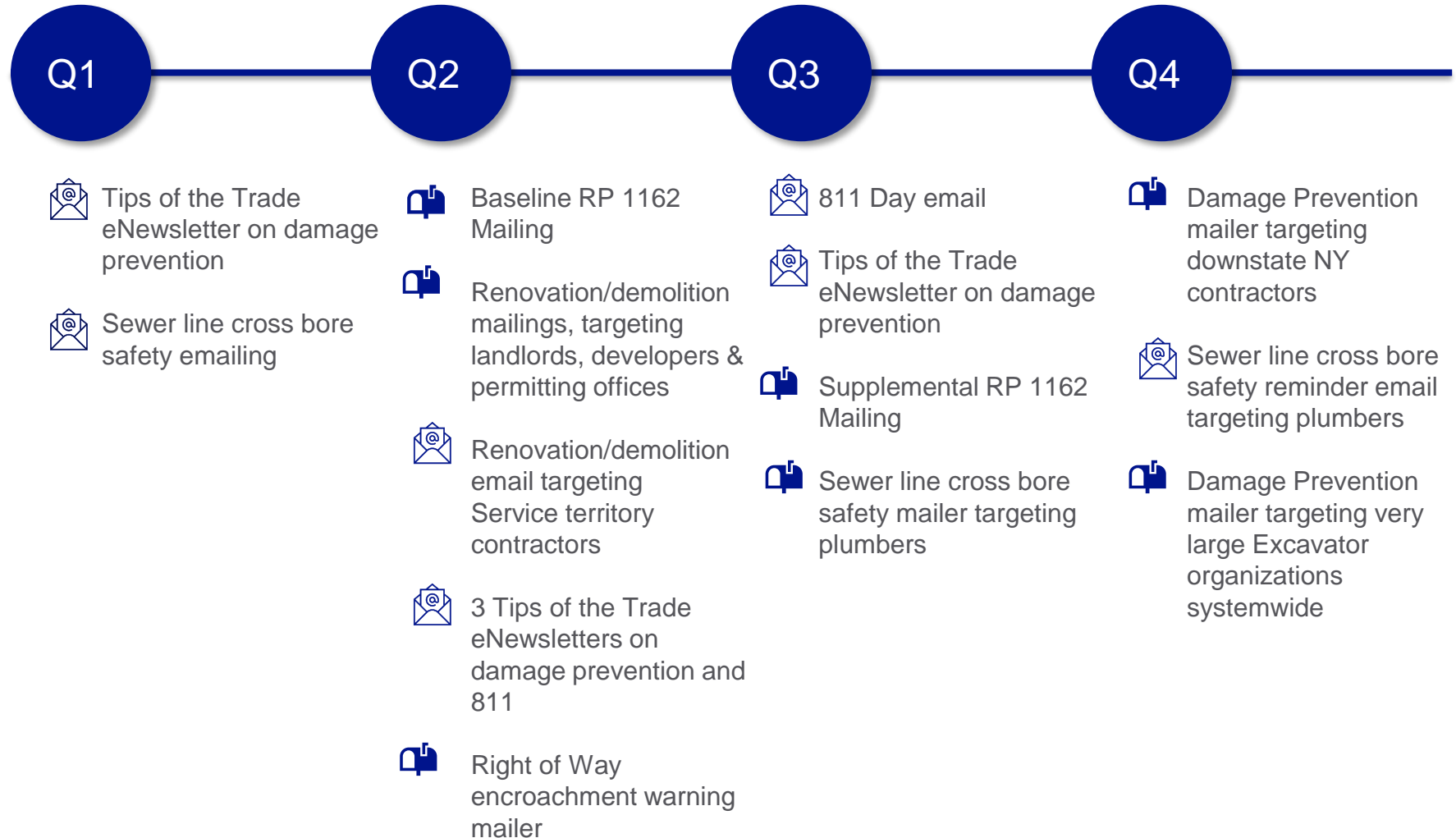
## Initiatives that promote employee awareness and empowerment:

- Liaison Catalog – online “store” employees use to request public safety awareness resources
- Call-center script, incorporating 811, odor fade and other hazard awareness messaging
- National Grid employee newsletter – focused on pipeline public awareness
- Additional data mining and analytics

The screenshot shows a web browser window displaying the 'Excavator Baseline' product page on the National Grid website. The browser's address bar shows the URL: <https://ngridssafety-test3.culverco.com/product/excavat...>. The website header features the 'nationalgrid' logo and a navigation menu with items: 'Damage Prevention', 'Public/School', 'First Responders', 'Elected & Public Officials', 'Miscellaneous', and 'Archives'. The main content area is titled 'Excavator Baseline' and includes a description: 'Annual pipeline public awareness program (PPAP) safety mailer distributed by National Grid to more than 110,000 excavator stakeholder organizations in the utility's gas service counties. Mailer complies with API Recommended Practice (RP) 1162. Covers natural gas pipeline purpose and reliability, potential gas hazards and prevention measures undertaken, damage prevention, leak/damage recognition and response, one-call requirements, pipeline locations and sources of additional information. A detachable visor card provides tips for convenient job site reference on safe excavation, gas leak warning signs and leak response.' Below the description, there are fields for 'AUDIENCE: Third-party excavators', 'REGION(S): Gas service counties in New England, Downstate New York, Upstate New York', and 'DATE PUBLISHED: January 2019'. There is also a 'PROJECT: 11390' and 'PRODUCT: 97610' field. A 'Select a Region' dropdown menu is set to 'Choose an option'. A quantity selector shows '25' items. An 'ADD TO CART' button is visible at the bottom. The footer contains the text: 'Copyright © 2019 Culver Media, LLC. All rights reserved.'

# Overview 2020 YTD excavator activities

327,000 Excavator touchpoints year to date



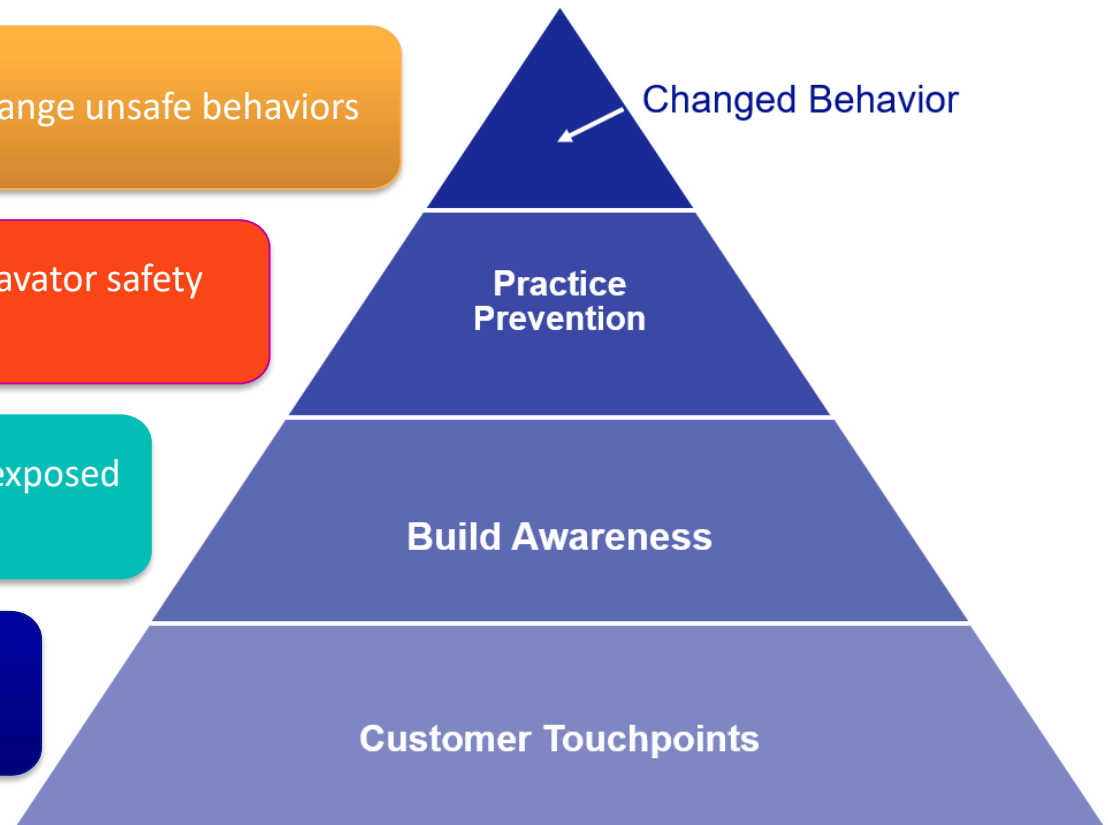
# Impacts: Benchmarking metrics demonstrate effectiveness across the service territory

44,801 likely to change unsafe behaviors

56,710 fully read our excavator safety messaging

515,550 total workers potentially exposed to our messaging

323,301 projected\* to have received National Grid's messaging



\* Projections based on National Grid 2020 YTD program data and nationwide benchmarking. 95% confidence  
±3.3%



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