

**2022**  
**MIDWEST DAMAGE PREVENTION**  
**TRAINING CONFERENCE**

# Are We At Peak Damage Prevention?

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Damage Prevention Ambassadors



# AUDIOVISUAL SERVICES PROVIDED BY



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# Locating, Marking and Mapping your Utilities

## Root Cause of majority of damages:

1. Using 100-year-old technology
2. Industry & compliance has not changed with technology.

## Utility Location prior to Excavation

- EM Locating Equipment
- Vacuum Truck
- Ground Penetrating Radar
- Plastic Pipe Locating
- Shove
- Witching Sticks

Tracer Wire

Compliance



Safety

Reactive

## Eyes on the Pipe:

- “Dig in’s”: Line Strikes
- Pipeline Maintenance
- Tie in’s
- “Add in’s”: Security system, cable

## Mark & Map during Install

- EMS Passive/RFID Markers
- 360 Above Ground Markers (AGM)
- GPS/Mapping
- Detectable Caution Tape
- Caution Tape
- Early Warning Tape
- EMS Locatable Early Warning Tape

## Major Factors:

- Excavator/Backhoe (44%)
- Failure to call (22%)
- Bad Locate (28%)
- Other (6%)

Source: CGA DIRT Report, 2019





# Major Factors of Line Strikes

## Why?

### Failure to call 811 - One-Call Center (22%):

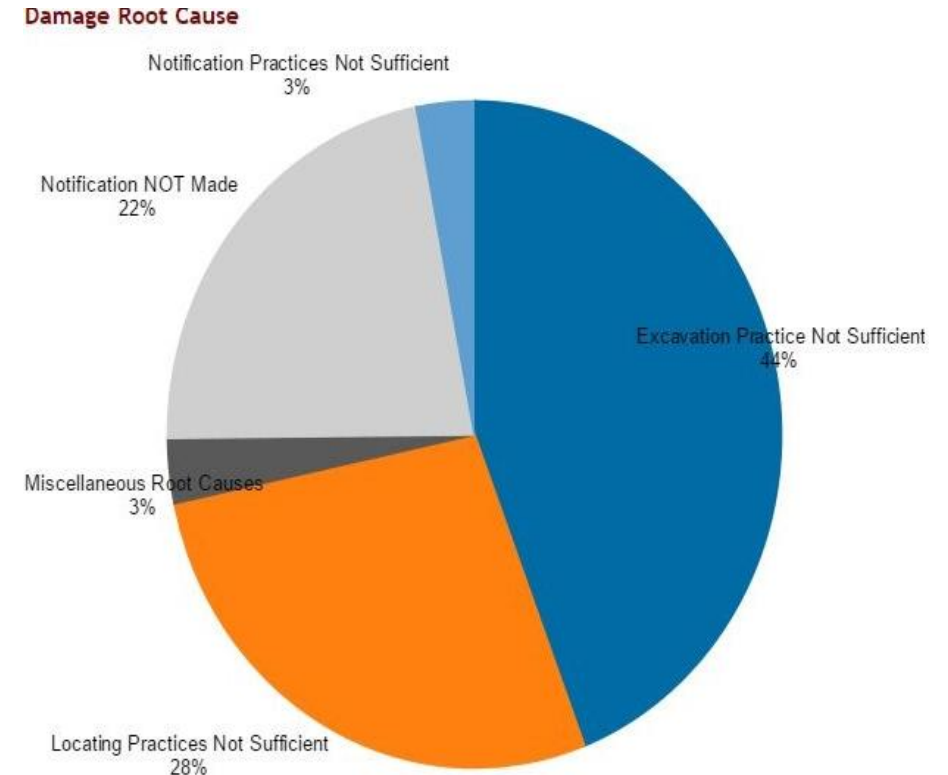
Excavator did not call the one-call center, includes occasions when notification was not required.

### Failure in Marking or Location (28%):

Example: Locator marked the work zone but missed a service. Locator misread the ticket and did not locate the entire work zone. Facility was outside the tolerance zone.

### Failure to use proper Excavation Practices (44%):

The excavator did not use proper care or follow the correct procedures when excavating near a facility.



Source: CGA DIRT Report, 2019



### Marking Point of Interest (POI) of Utility – critical assets find at later time.

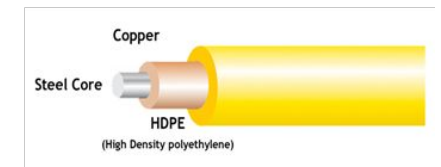
- 360° Above Ground Marker
- Surface marker
- Above Ground Structure to measure off
- Maps/GPS
- Electronic Marking System
  - Passive
  - RFID – Information storage on marker

**VS**



### Marking the Pathway of Utility

- Tracer Wire
  - Different Gauges
  - Mule Tape
  - Copper
- Ground Penetrating Radar GPR
- Acoustic Pipe Locator
- Backhoe or Excavator
- Caution Tape
- Signal Tape
- EMS Locatable Early Warning Tape
- Shovel



## From No Notification, Accurate Locates to Improper Excavation Practices.

### **Locating**

- ✓ Use of Path Marking Tape and/or Tracer Wire
- ✓ EMS Passive/RFID Markers
- ✓ 360° Above Ground Marker, Surface Marker
- ✓ Pictures
- ✓ GPS

You have done everything possible to identify, mark and locate your Utility.

- You can protect your assets.
- Protect your company from scrutiny, fines and fatalities.
- Keep your projects on time & within budget.
- Your attorneys will love you.

### **No Notification & Excavation Practice**

- ✓ *Locatable Early Warning Tape* placed 2 – 3 Feet above Utility.

You increase your protection for your Buried Asset and your Contractor from:

- No Notification.
- Facility Marking or Location Not Sufficient.
- Excavation Practices Not Sufficient.
- As-Builts incorrect or not sufficient.





# Damage Prevention Analysis

Locating

| Locating                 | It is an Art | Level of Training | Locating Practices | Failure to Call B4 Dig | Excavator Practices |
|--------------------------|--------------|-------------------|--------------------|------------------------|---------------------|
| Shovel - Hand Dig        | No           | Low               | Yes                | Yes                    | Yes                 |
| Witching Sticks          | Yes          | Low               | Yes                | No                     | No                  |
| EM Locator               | Yes          | High              | Yes                | No                     | No                  |
| Vacuum Truck             | No           | Medium            | Yes                | No                     | No                  |
| Ground Penetrating Radar | Yes          | High              | Yes                | No                     | No                  |
| Acoustic Pipe Finder     | Yes          | High              | Yes                | No                     | No                  |

Reactive



Proactive

Marking

| Marking                      | Level of Training | Locating Practices | Call B4 Dig | Excavator Practices |
|------------------------------|-------------------|--------------------|-------------|---------------------|
| Tracer Wire                  | Low               | Yes                | No          | No                  |
| Metal Detectable Tape        | Low               | No                 | Yes         | Yes                 |
| Caution Tape                 | Low               | No                 | Maybe       | Maybe               |
| Above Ground Marker          | Low               | Yes                | Yes         | Yes                 |
| EMS Marker Passive/RFID      | Medium            | Yes                | No          | No                  |
| GPS/Mapping                  | High              | Yes                | No          | No                  |
| Early Warning Tape           | Low               | No                 | Yes         | Yes                 |
| Locatable Early Warning Tape | Low               | Yes                | Yes         | Yes                 |



Table 7—Trends in damages and key indicators, based on total U.S. damages (consistent reporting entities only)

| Variable  | 2019      | 2020      | 2021      |
|---|-----------|-----------|-----------|
| Reported Unique Damages (Comparable Dataset)          | 149,627   | 154,766   | 164,202   |
| Total Estimated Transmissions in U.S. (Millions)      | 267.6     | 273.9     | 288.3     |
| Value of Construction Spending (Millions of 2021 USD) | 1,489,721 | 1,576,142 | 1,626,444 |
| Damages per Dollar of Construction Spending           | 0.100     | 0.098     | 0.101     |
| Change in Damages per Construction Spending           | Baseline  | -2%       | +3%       |
| Damages per 1,000 Transmissions                       | 0.559     | 0.565     | 0.570     |
| Change in Damages per 1,000 Transmissions             | Baseline  | -1%       | +1%       |

Source: 2021 CGA DIRT Report

- Damages per Excavation Activity has flat-lined for 3+ years



## 811 Transmissions by Year

Table 6—Trends in digging activity as measured by transmissions and construction spending

| Variable   | 2016      | 2017      | 2018      | 2019      | 2020      | 2021      |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| Total Estimated 811 Center Transmissions (Millions)        | 221.9     | 234.9     | 244.3     | 267.6     | 273.9     | 288.3     |
| Construction Spending (Millions 2021 USD)                  | 1,434,334 | 1,467,242 | 1,462,365 | 1,489,721 | 1,576,142 | 1,626,444 |
| Transmissions Per Million Dollars of Construction Spending | 155       | 160       | 167       | 180       | 174       | 177       |

Source: 2021 CGA DIRT Report

- Assume average of \$17 per transmission for 811 call center fee, locating cost, damage cost, supervisory cost, etc.
- Total spend by facility owners is ~\$4.9 billion



# Damages from 2019-2021

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Source: 2021 CGA DIRT Report

- Estimated total damages in 2020 was 468,000
- Assumption: Total damages in 2021 was ~500,000, average repair cost is ~\$3,000, total damage cost is ~\$1.5 billion



If facility owners increase damage prevention spend  
increases by 10%...

Would number of damages decrease by 10%?





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increases by 10%...

Would number of damages decrease by 10%?



- Facility owners' annual damage prevention spend: \$4.9 billion
  - Increase spend of 10% is \$490 million
- Annual damage cost: \$1.5 billion
  - Decrease in damages of 10% is \$150 million
- If industry does damage prevention the same way but *better* and *more*, the ROI is negative
  - That is peak damage prevention





## CEU & SCHOLARSHIP ATTENDEES:

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<https://www.midwest811conference.com/have-we-peaked>

