



Excavation Damages

**Andrew Baader, Gas Pipeline Safety Engineer
Public Service Commission of Wisconsin**

February 7th, 2024

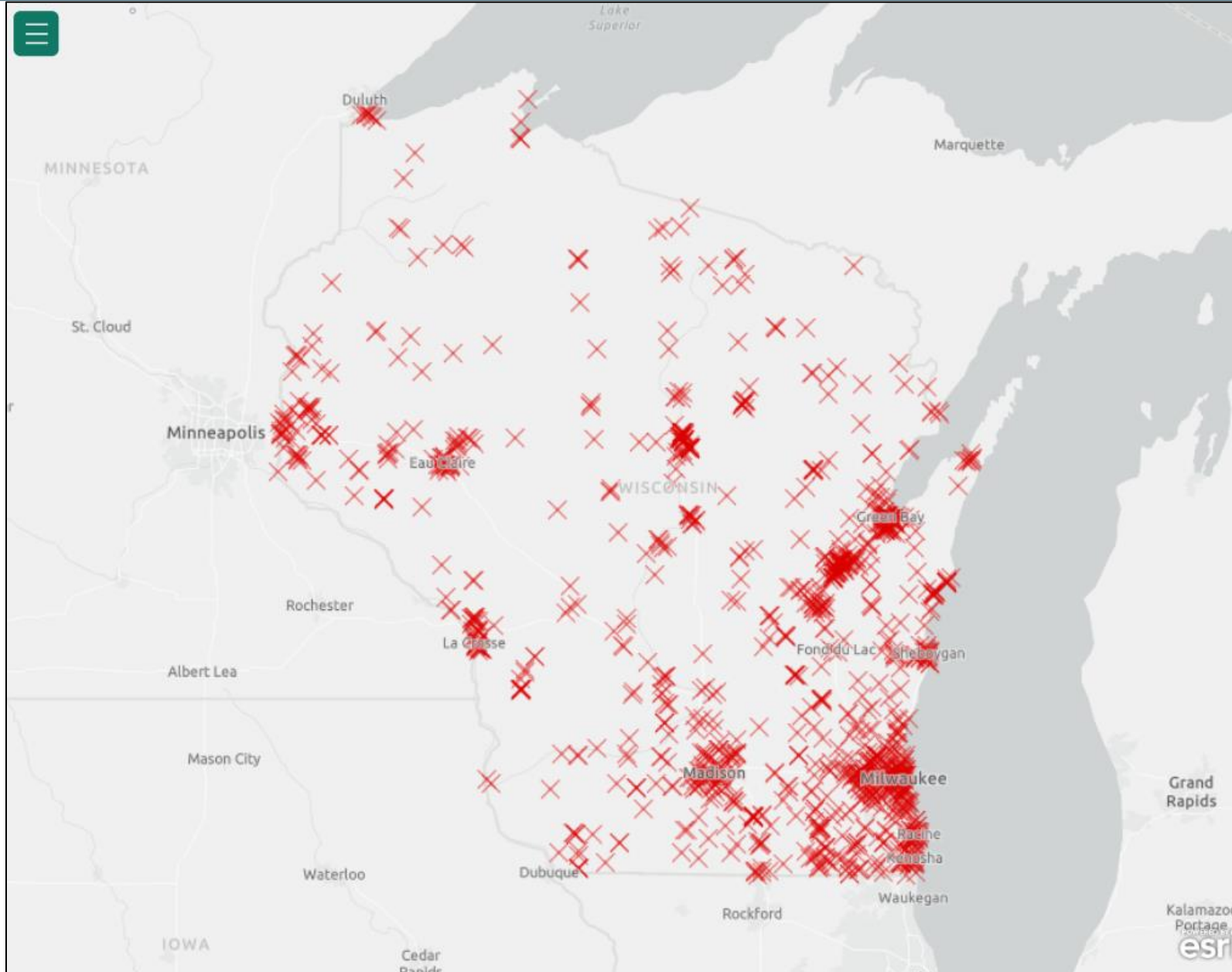
Gas Excavation Damages in WI

- Started in 2021 (three years of data)
- WI gas utilities submit quarterly report
- Excavation damages to their gas facilities
- Same categories as CGA DIRT Report

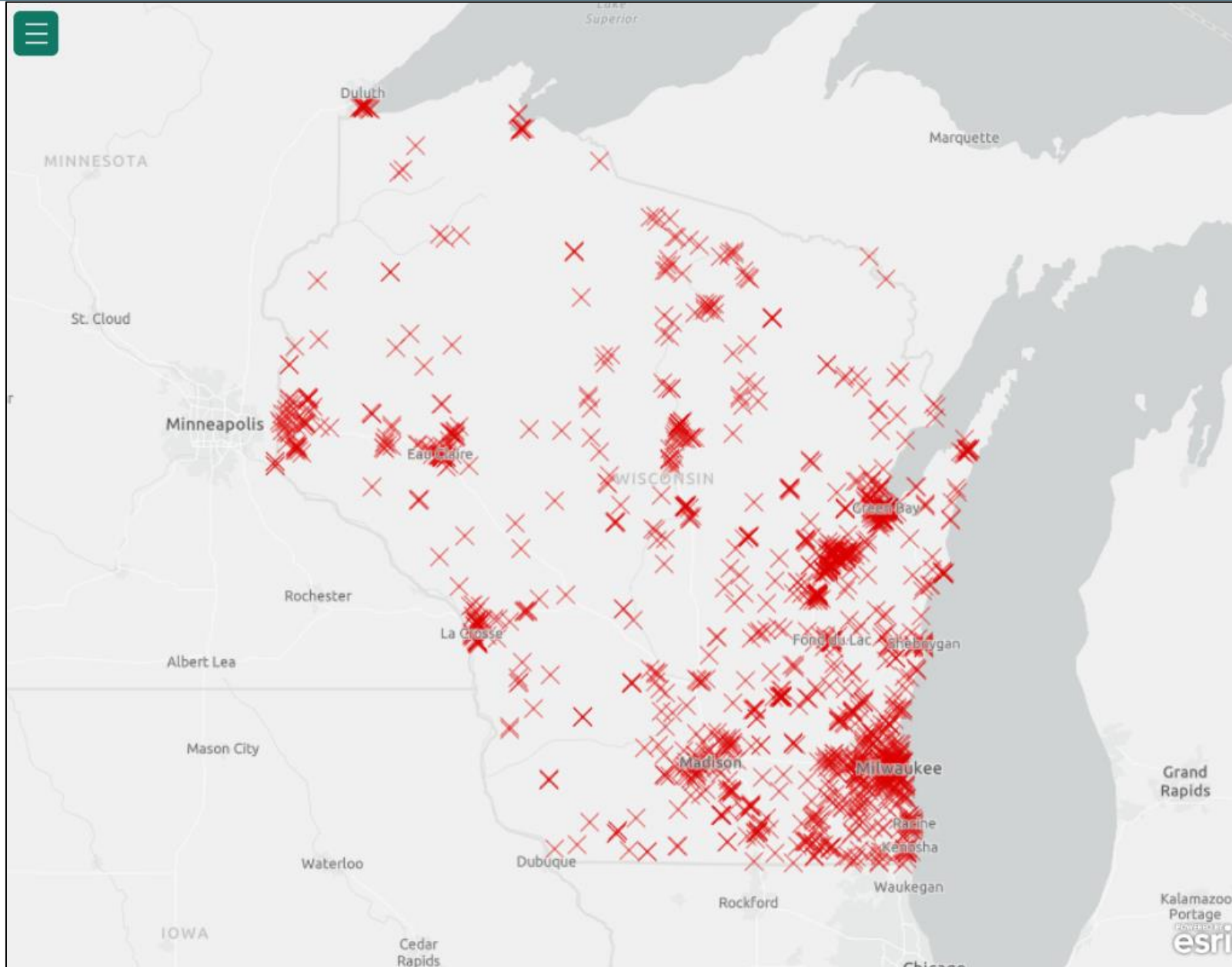
Details

- **Date**
- **Location**
- **ROW type** (City Street, Country Road, Interstate Highway, Railroad, etc.)
- **Excavator** (Contractor, County, Developer, Farmer, etc.)
- **Equipment** (Backhoe, Hand tools, Directional Drilling, Auger, etc.)
- **Work performed** (Gas, electric, communications, water, road, etc.)
- **Locator type** (Company or Contractor)
- **Root cause** (Didn't verify marks, Clearance, Didn't call 811, etc.)
- **If service was interrupted**

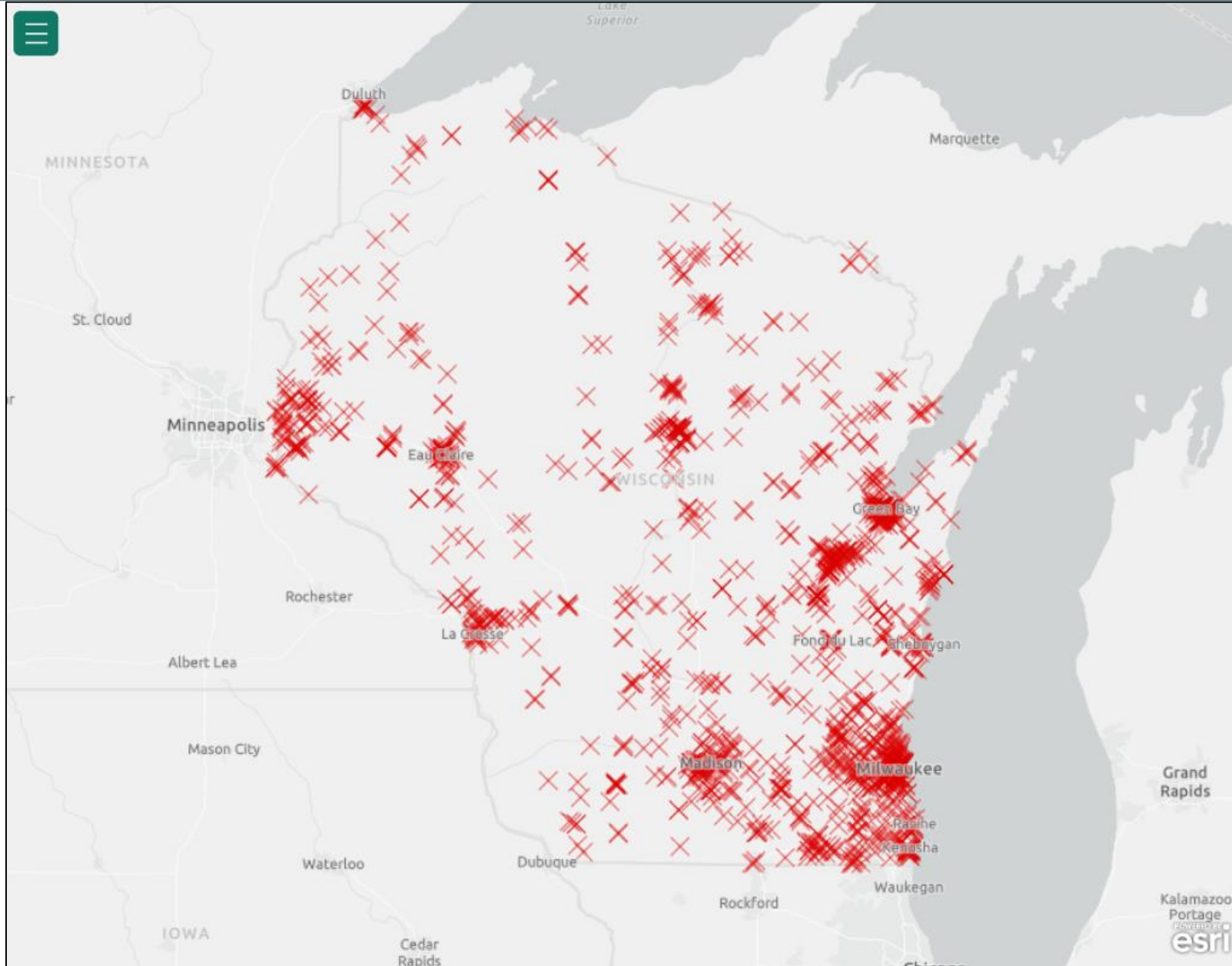
2021 Damages



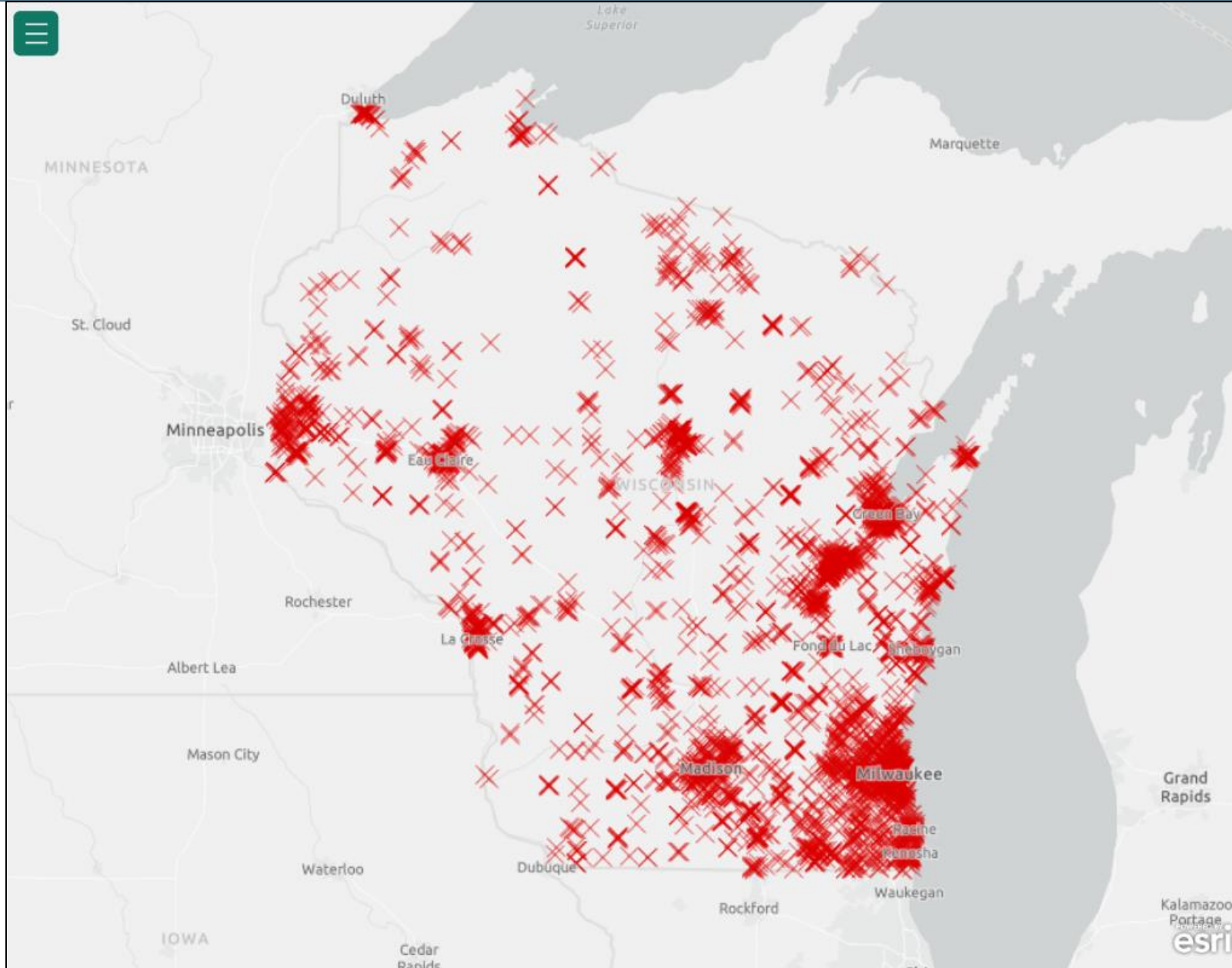
2022 Damages



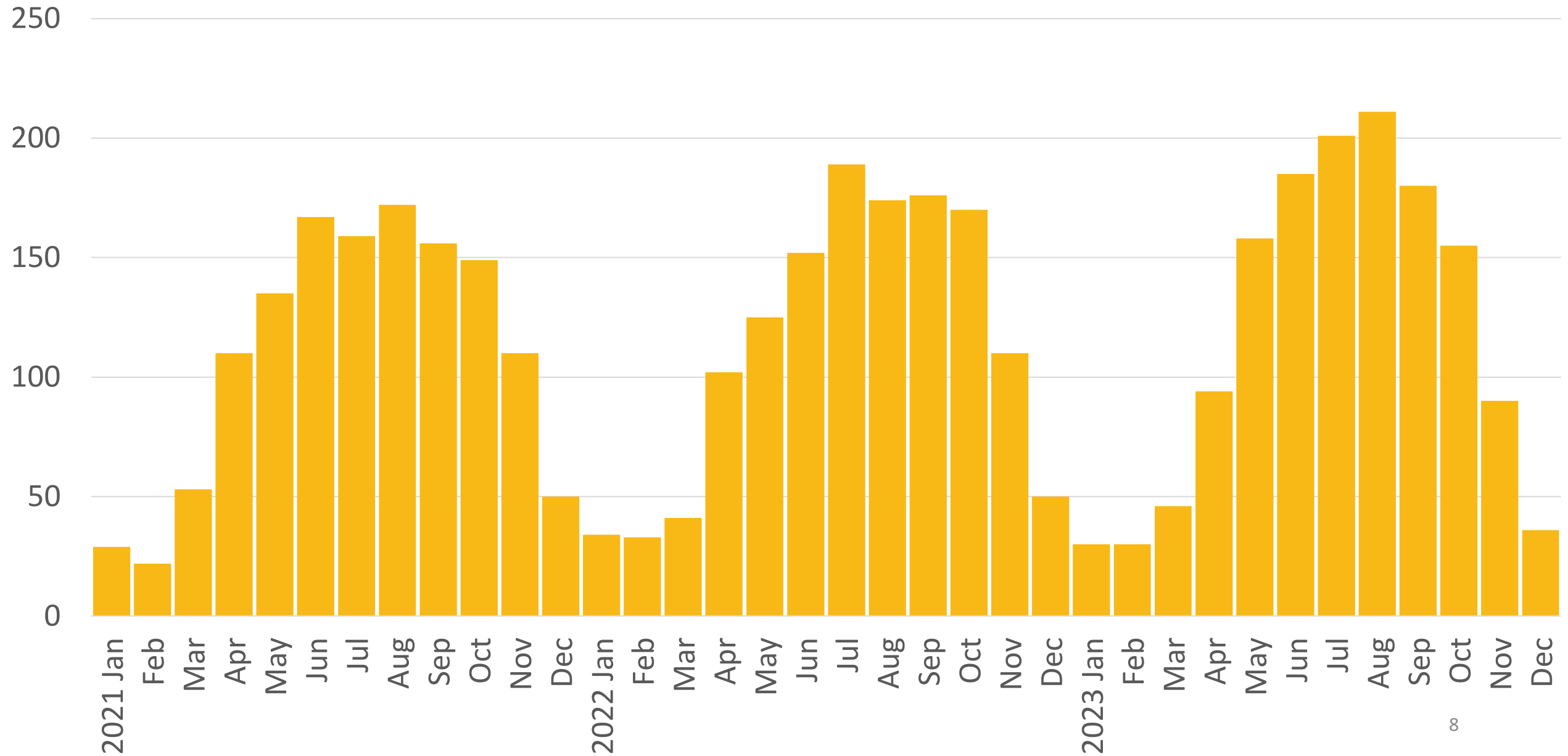
2023 Damages



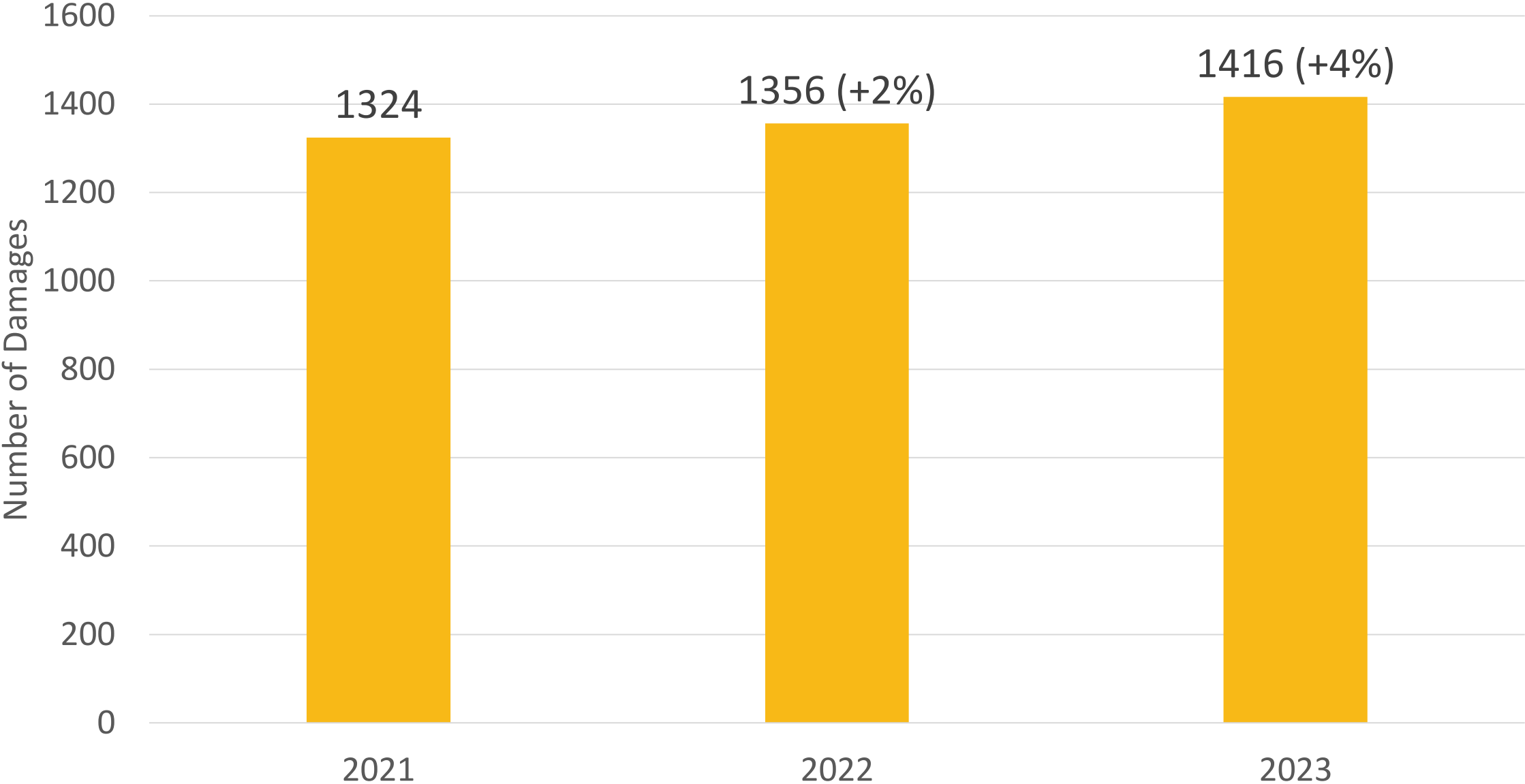
2021-2023 Damages



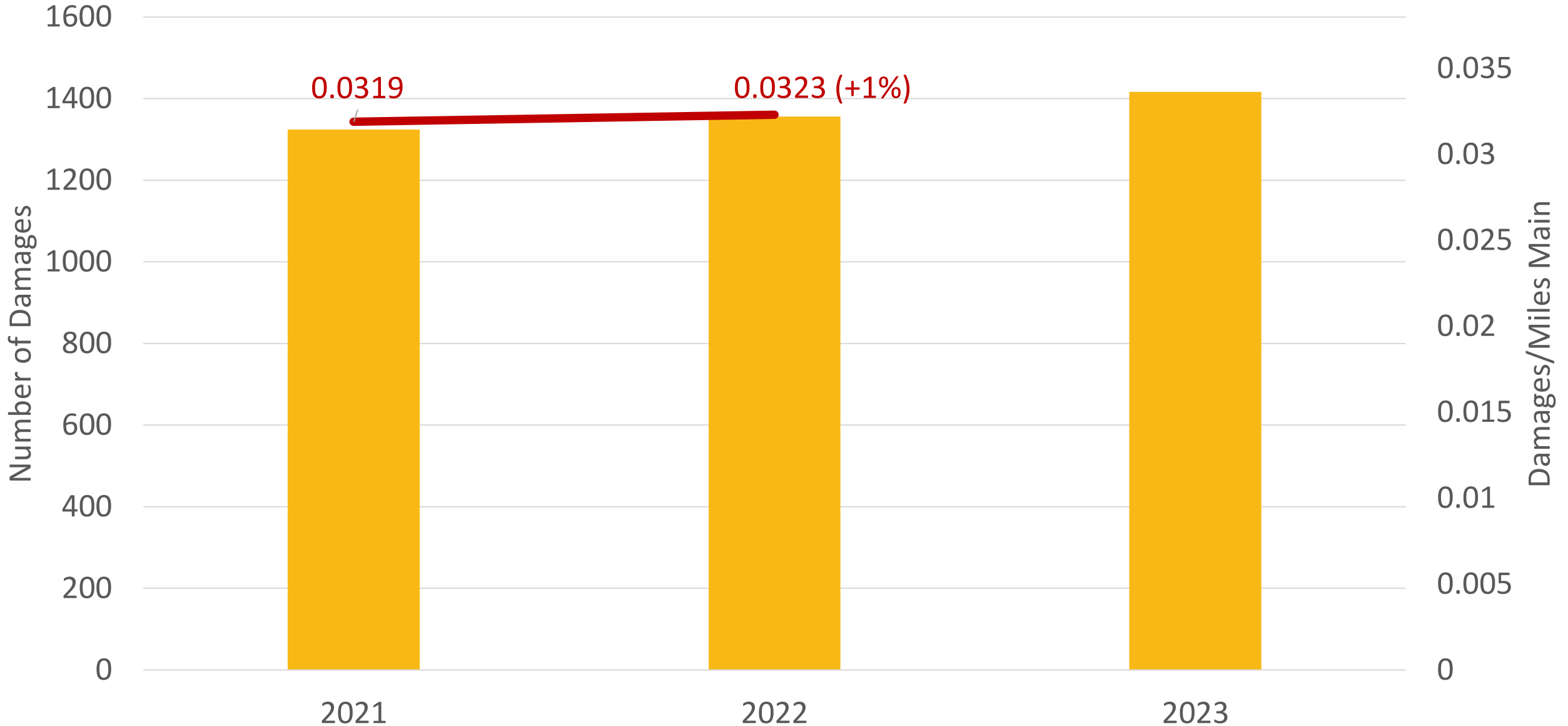
Damages per Month



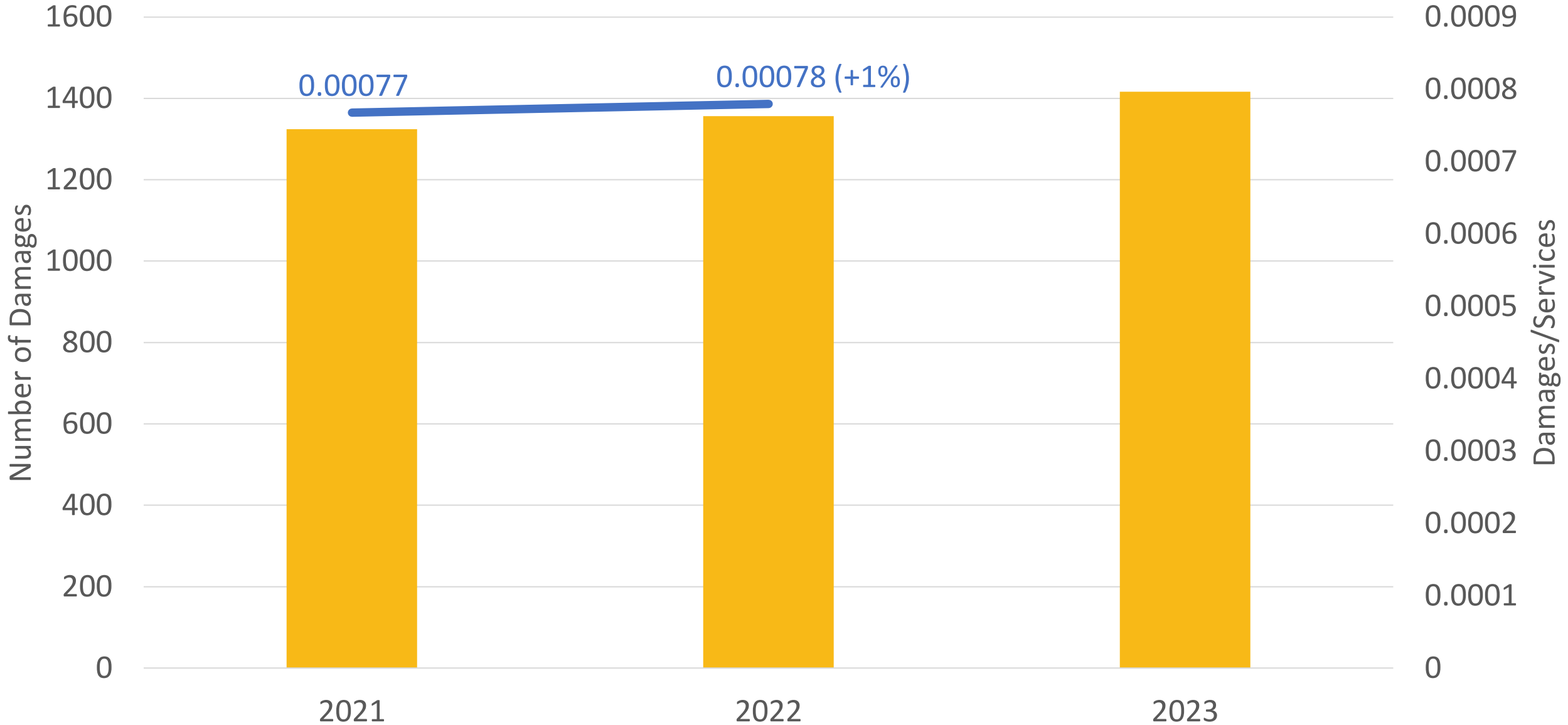
Damages per Year



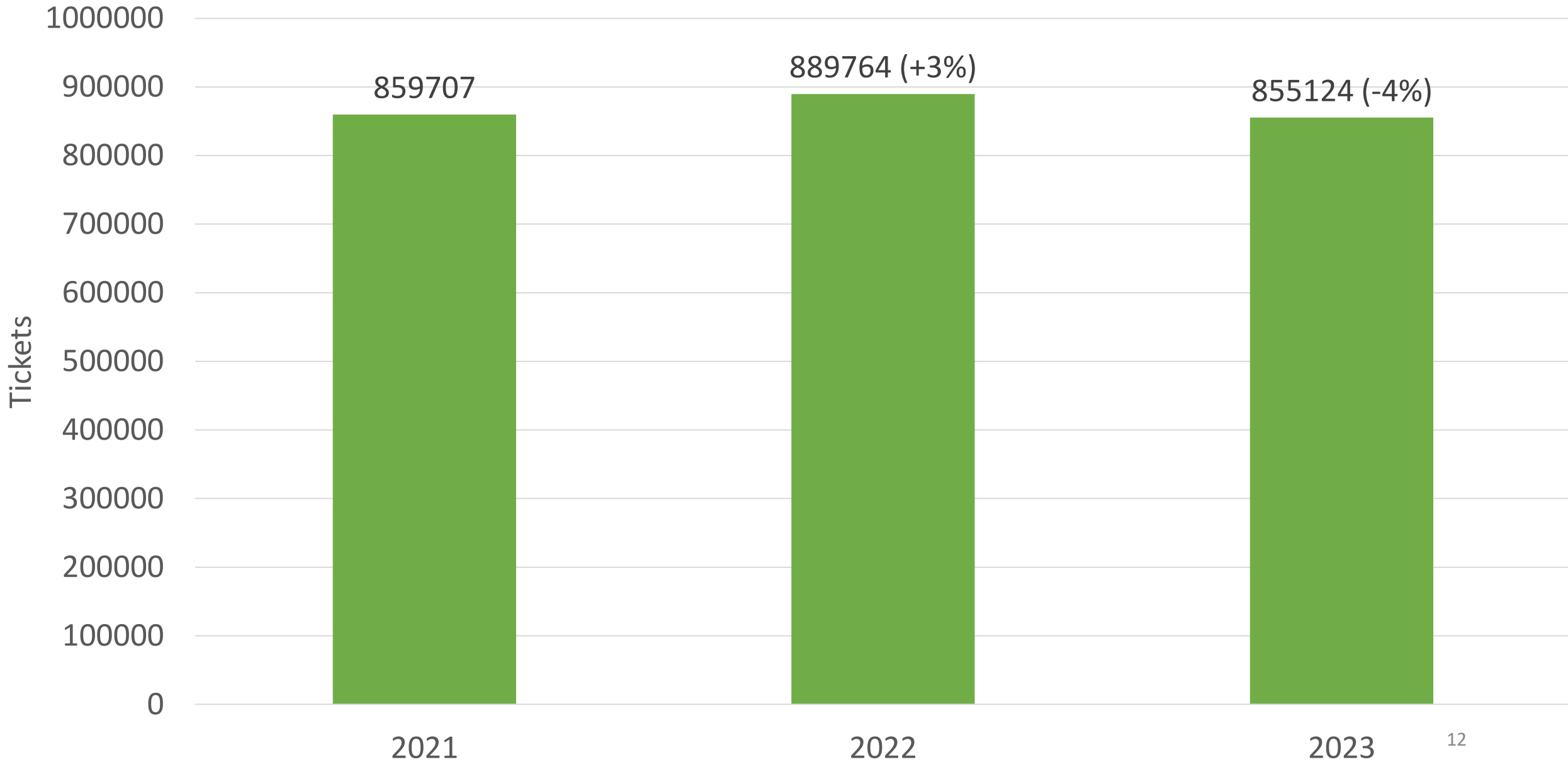
Damages per Year (with Damages/mile main)



Damages per Year (with Damages/Services)

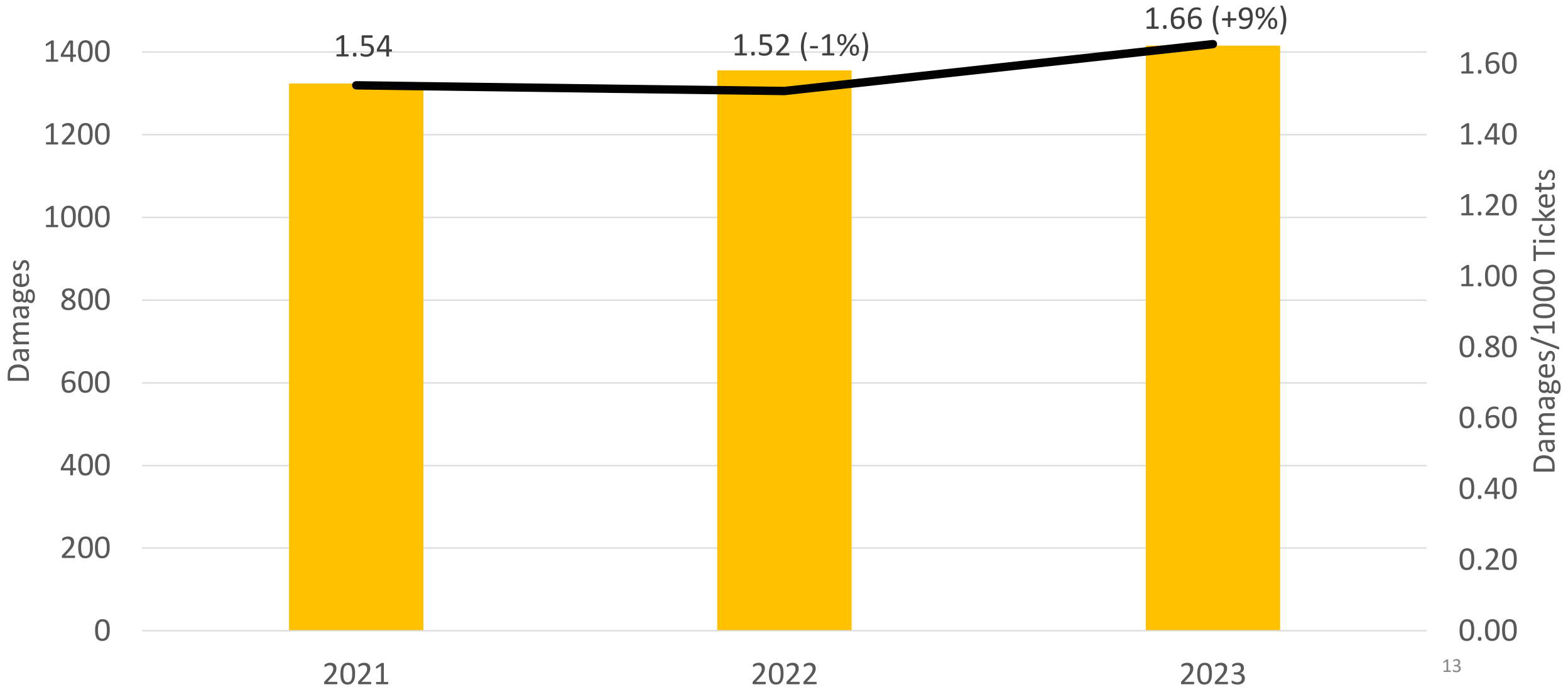


Tickets Received by LDCs

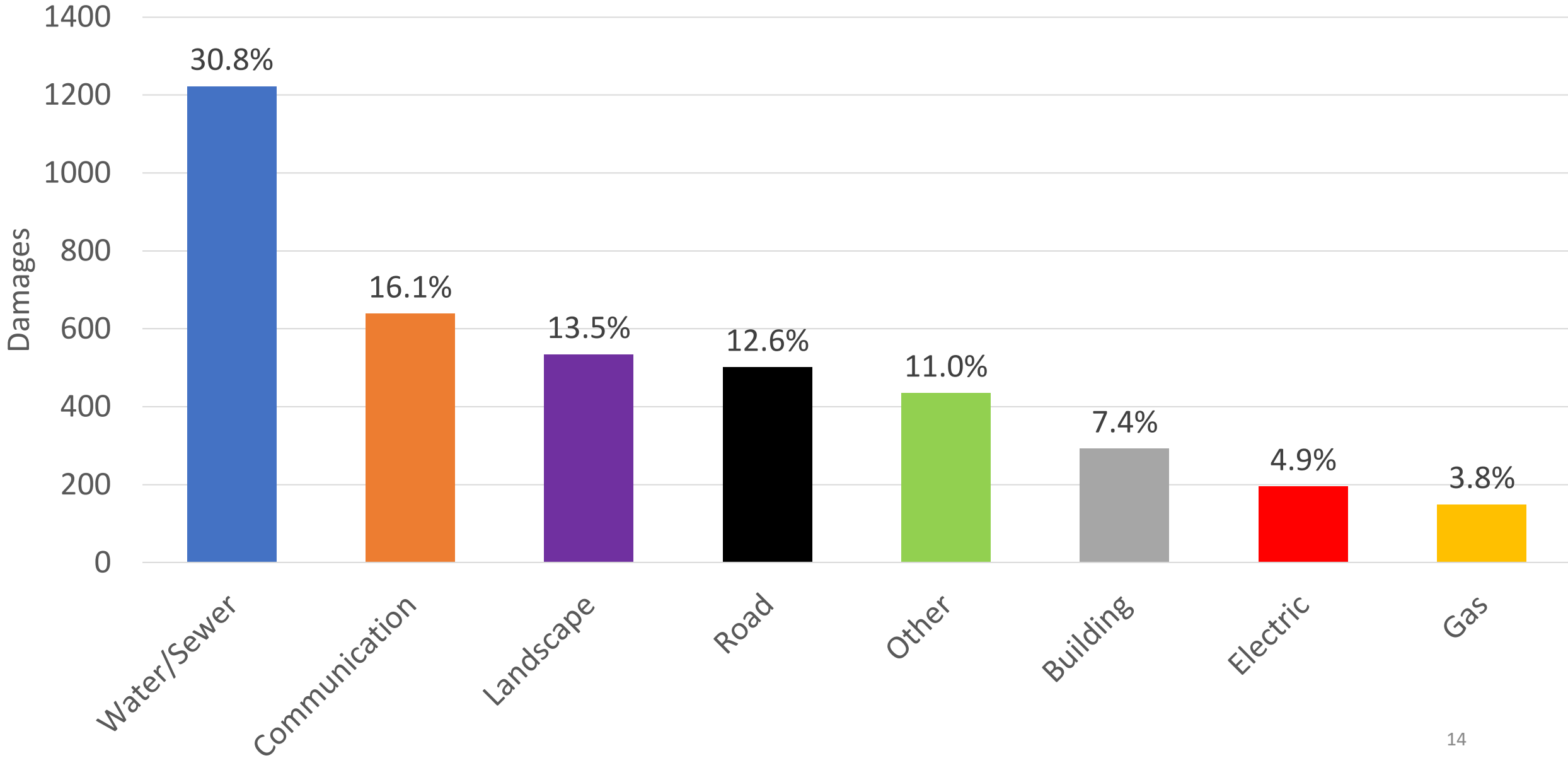


Damages per Year (with Damages/1000 Tickets)

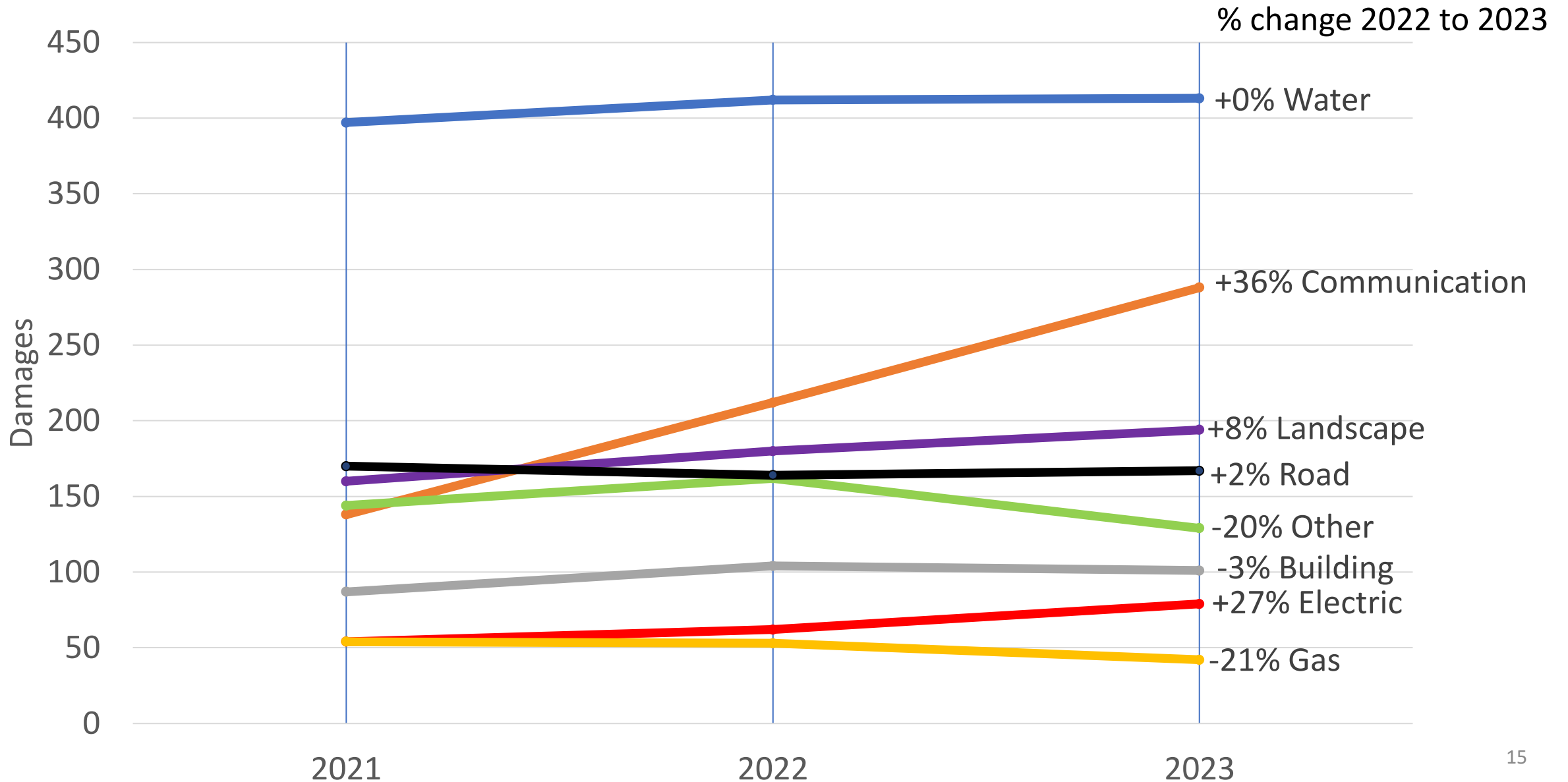
Damages by Year (with Damages/Tickets)



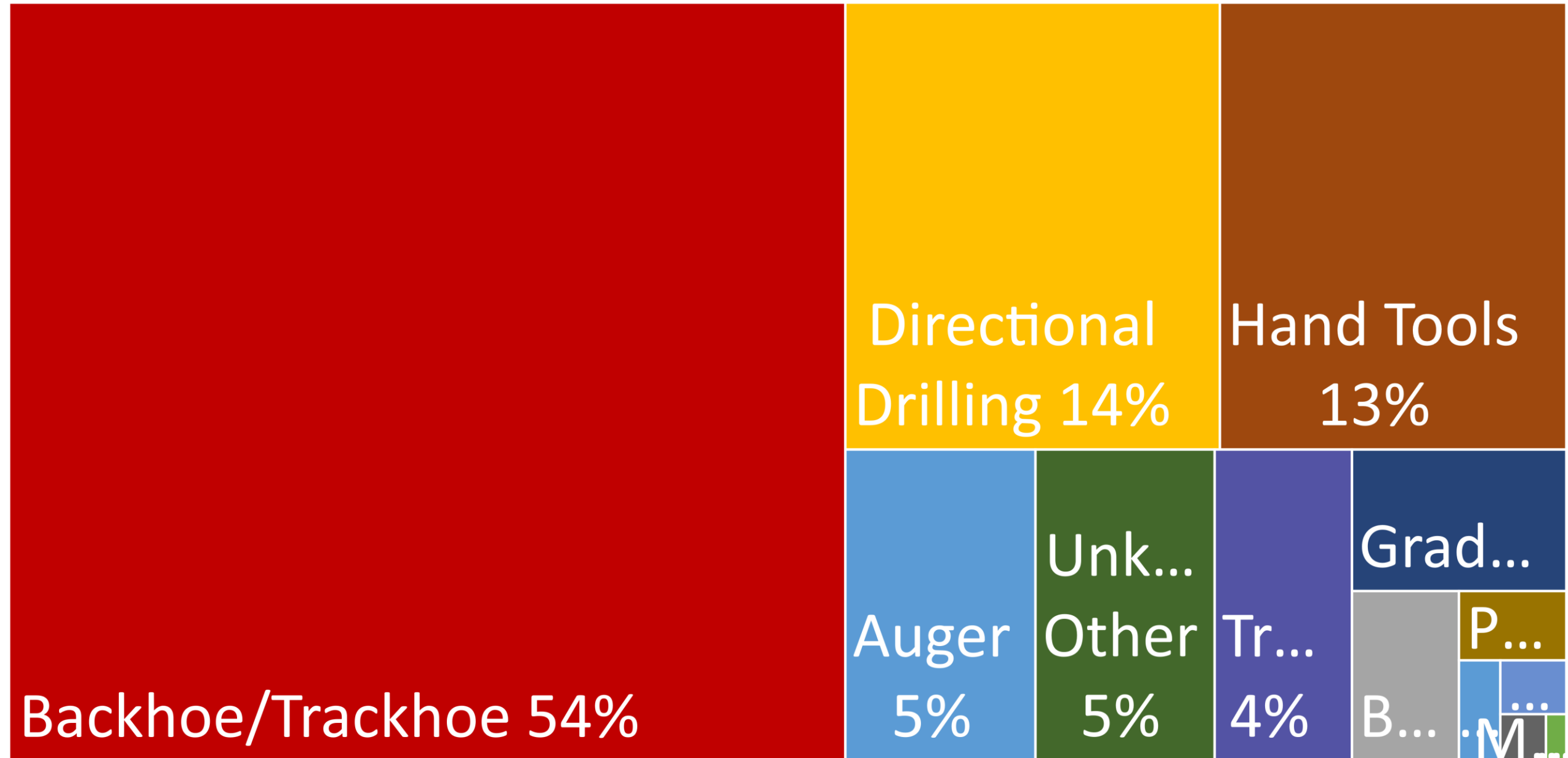
Work Performed by Damager (2021-2023)



Work Performed by Damager



Equipment that caused damage (2021-2023)



Root Cause Categories



Excavation practice

- Excavator dug prior to verifying marks by test-hole/pothole
- Excavator failed to maintain clearance after verifying marks
- Excavator failed to protect/shore support facilities
- Improper backfilling practices
- Marks faded or not maintained
- Other improper excavation practice

Invalid use of ticket

- Excavator dug outside area described on ticket
- Excavator dug prior to valid start date/time
- Excavator dug after valid ticket expired
- Excavator provided incorrect notification information

No locate requested

- Did not notify One Call Center

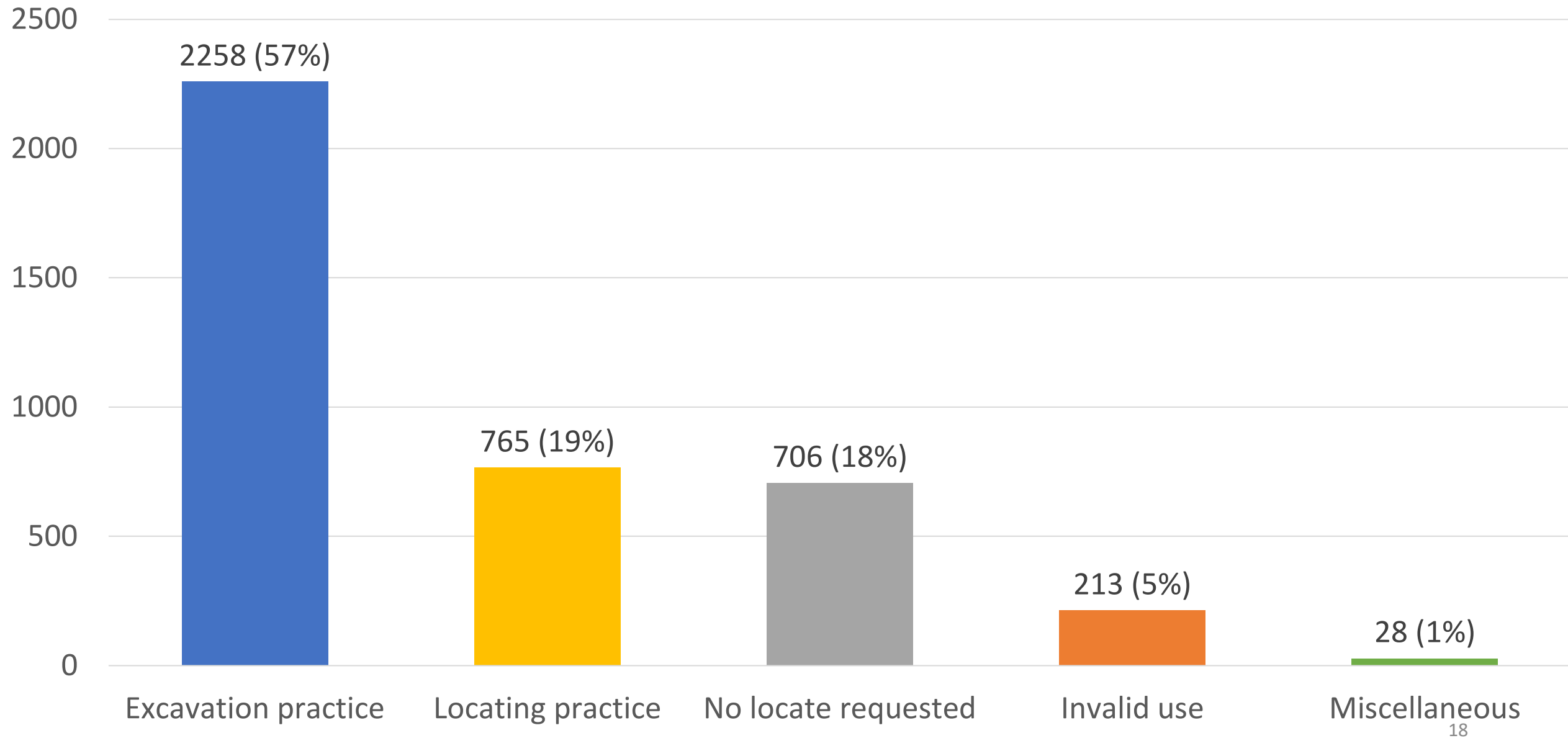
Locating practice

- Facility not marked - Abandoned
- Facility not marked - Incorrect records/maps
- Facility not marked - Locator error
- Facility not marked - No response from locator
- Facility not marked - Tracer wire issue
- Facility not marked - Unlocatable facility
- Facility marked inaccurately - Abandoned
- Facility marked inaccurately - Incorrect records/maps
- Facility marked inaccurately - Locator error
- Facility marked inaccurately - Tracer wire issue

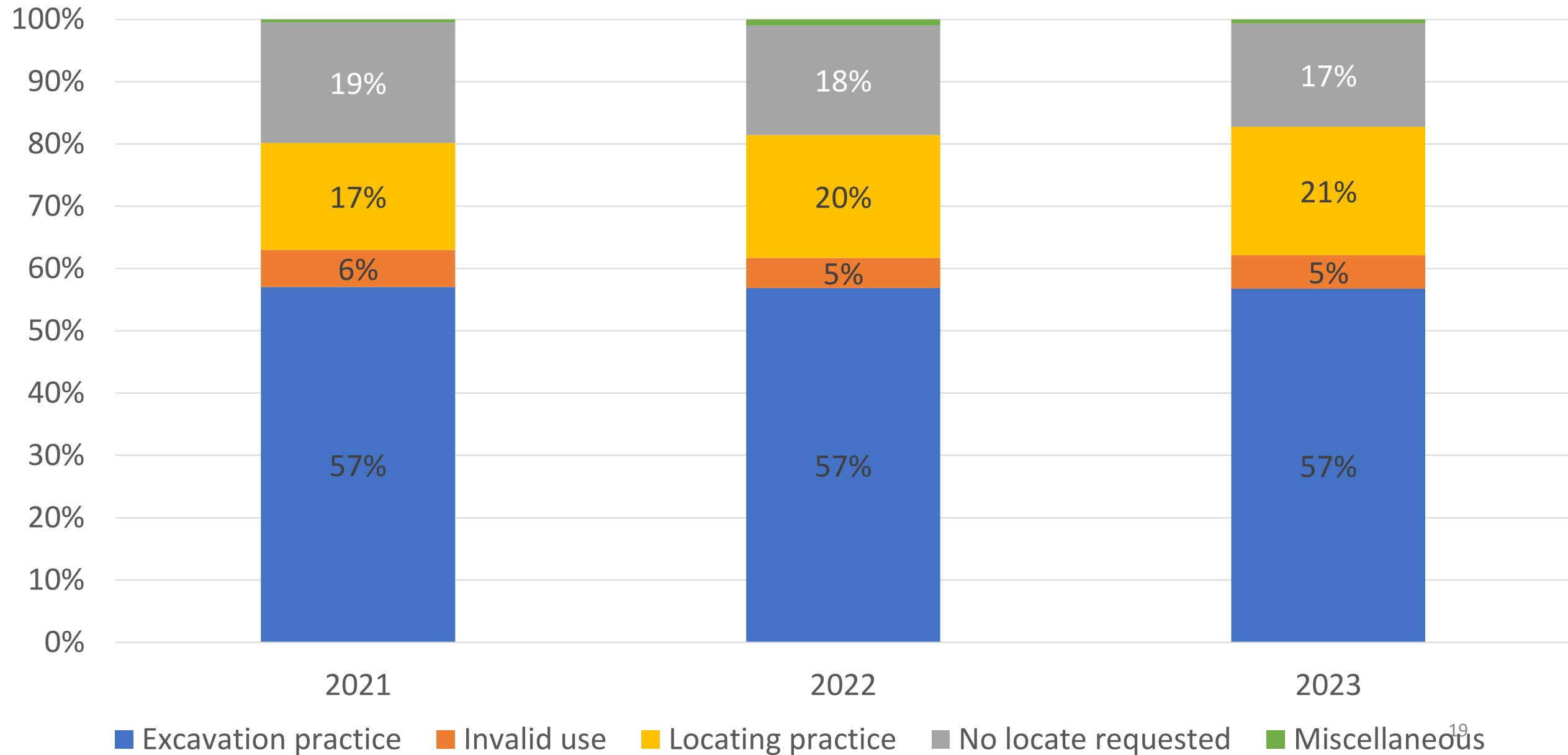
Miscellaneous

- Deteriorated facility
- One Call Center error
- Previous damage
- Other

General Root Cause (2021-2023)

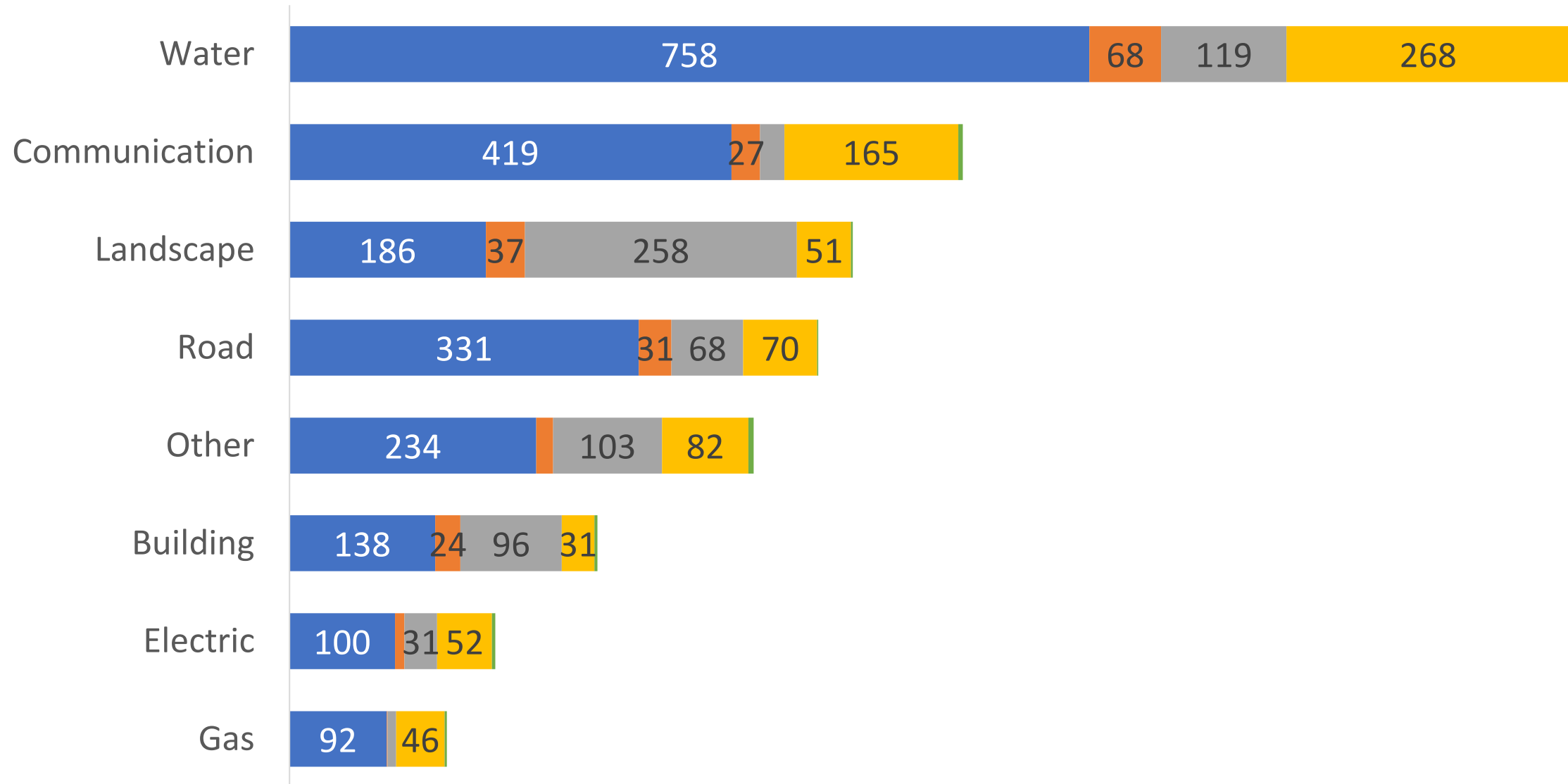


General Root Cause by Year

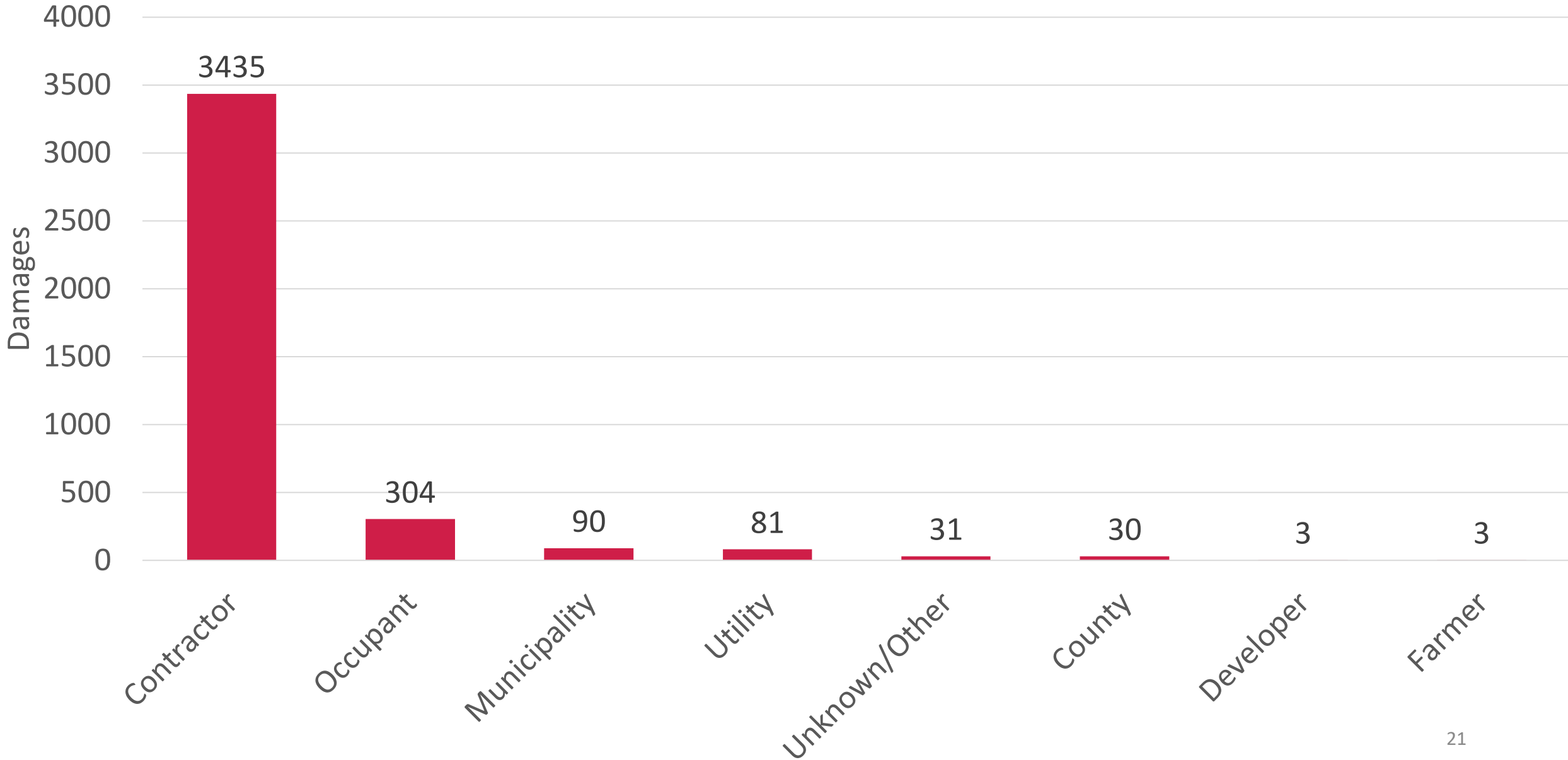


Root Cause by Work Type (2021-2023)

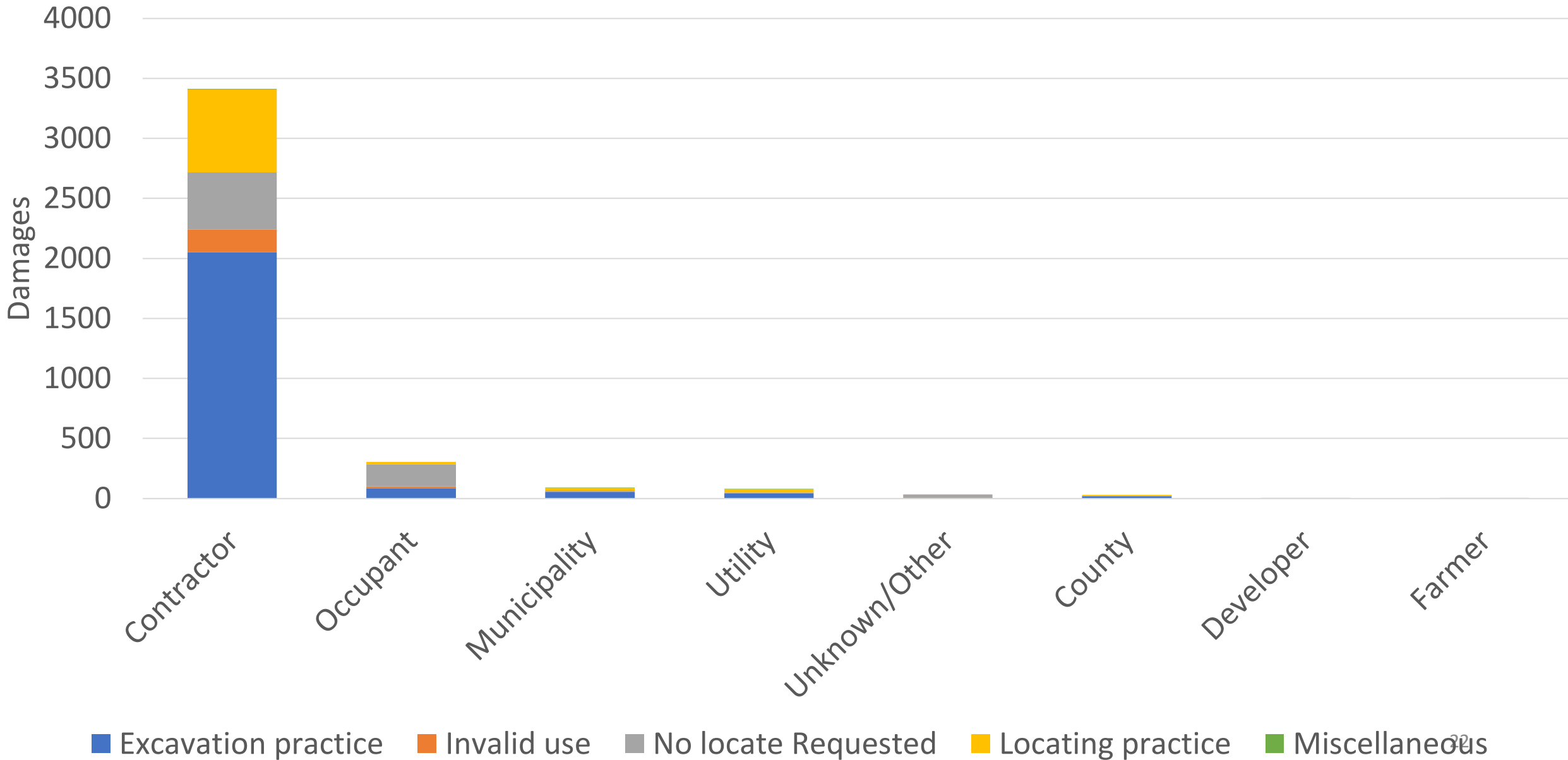
■ Excavation practice ■ Invalid use ■ No locate Requested ■ Locating practice ■ Miscellaneous



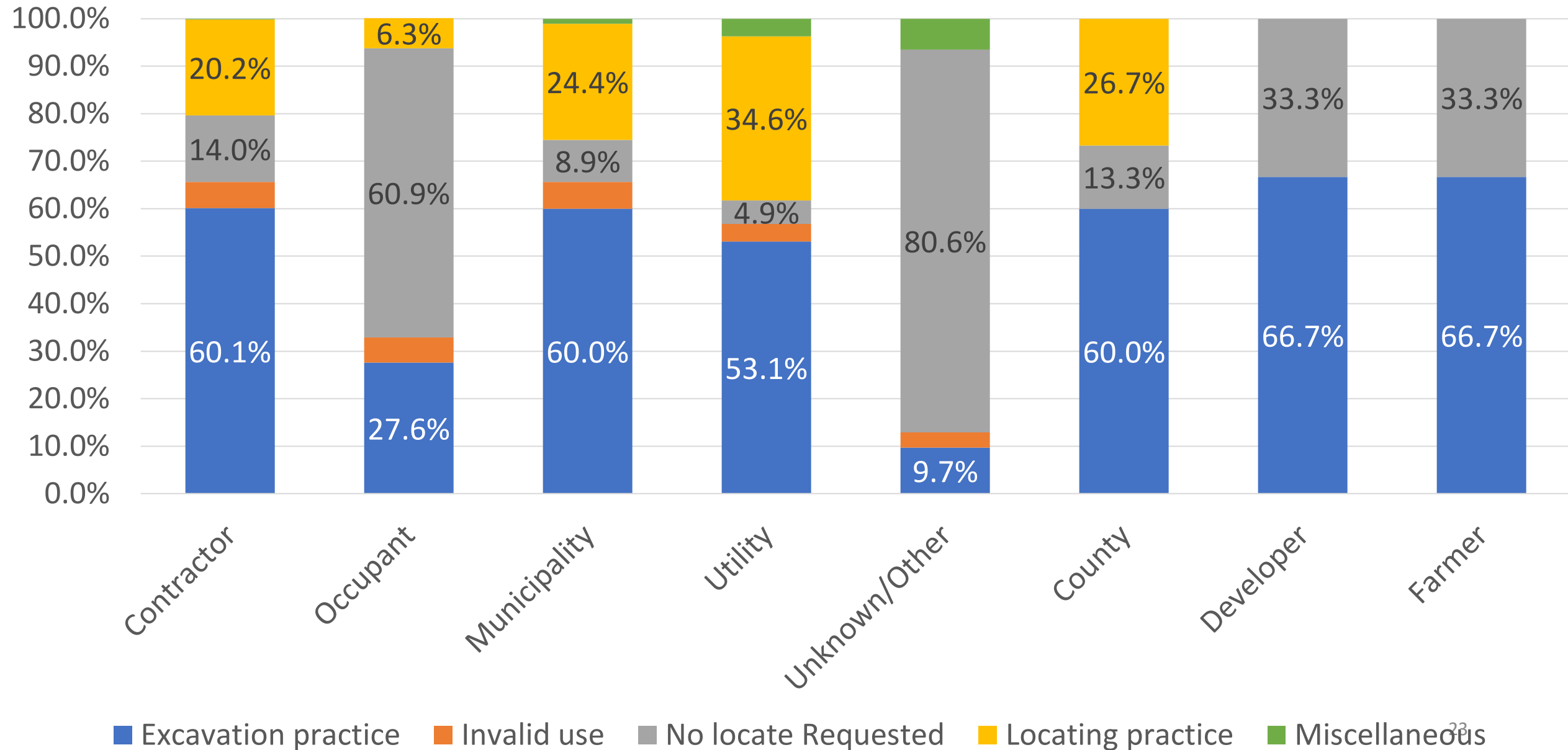
Type of Excavator (2021-2023)



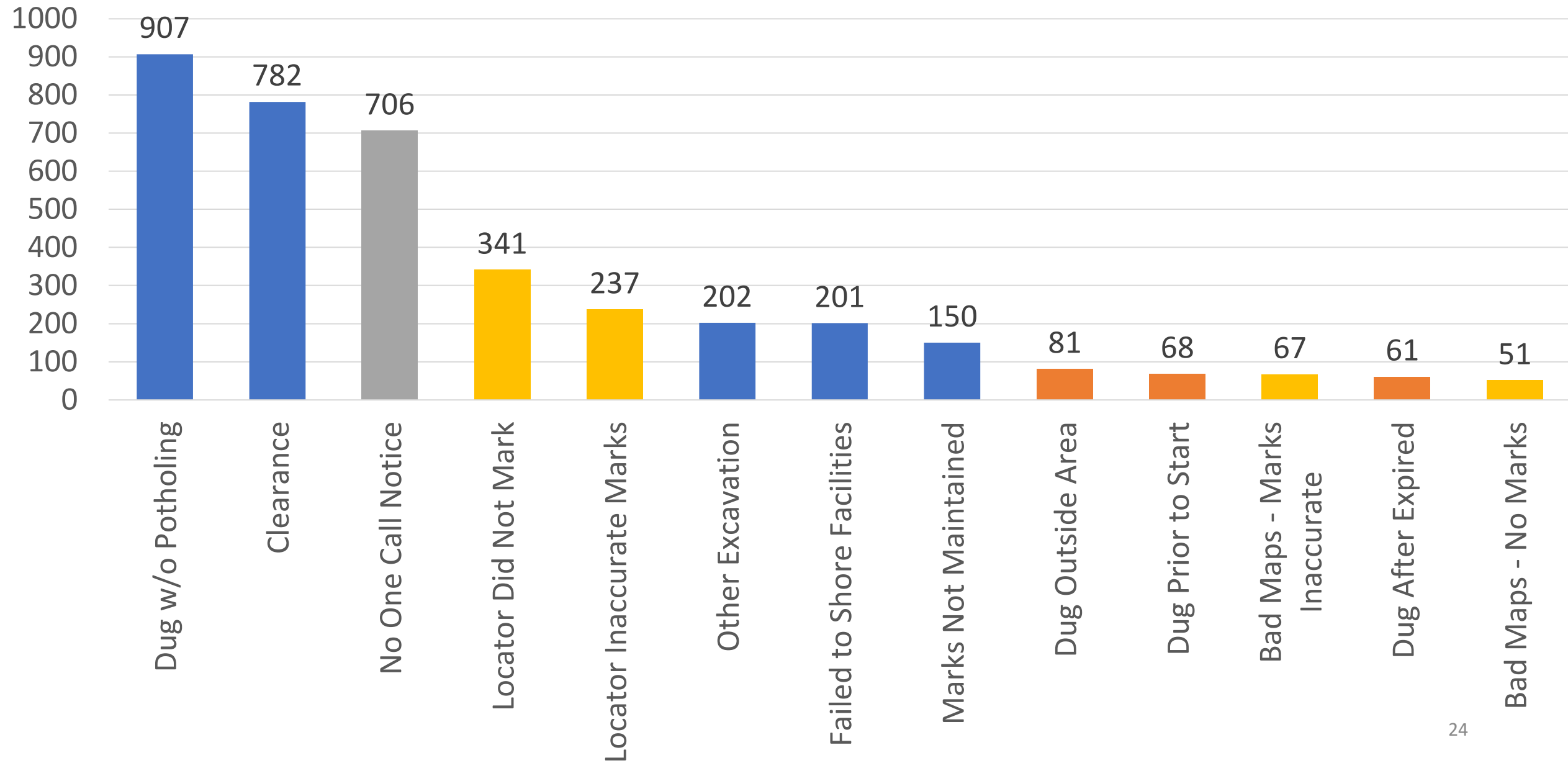
Type of Excavator by General Cause



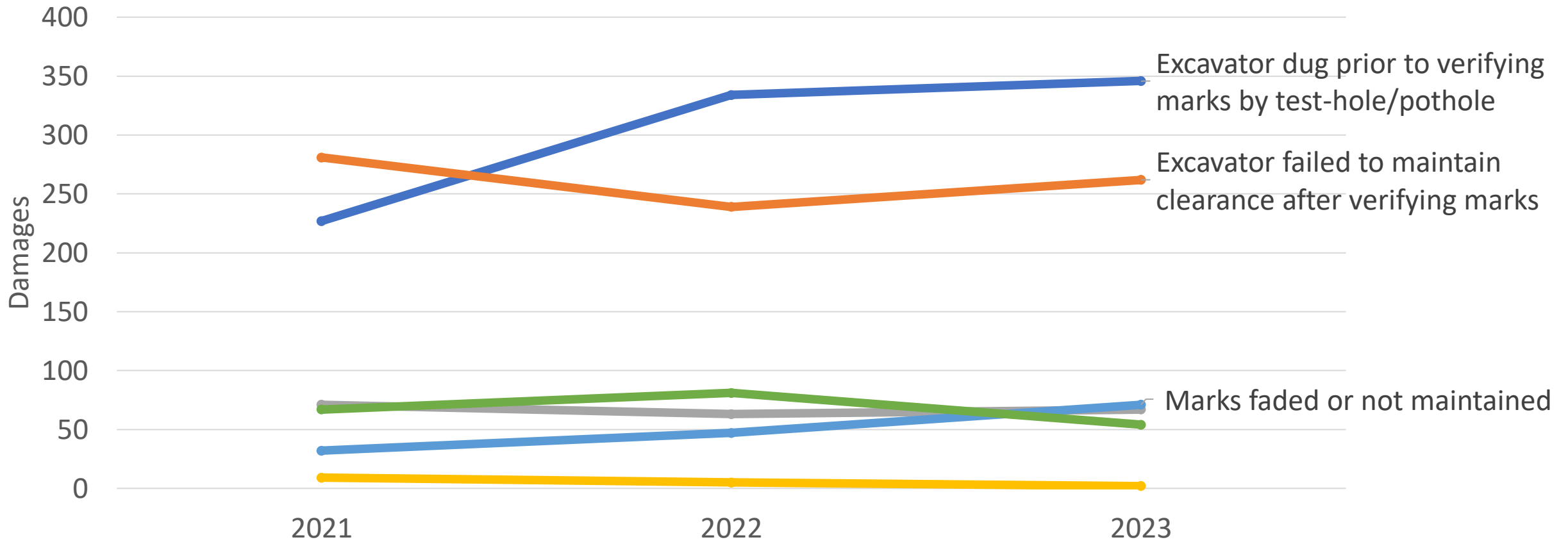
Type of Excavator by General Cause %



Root Cause (2021-2023)

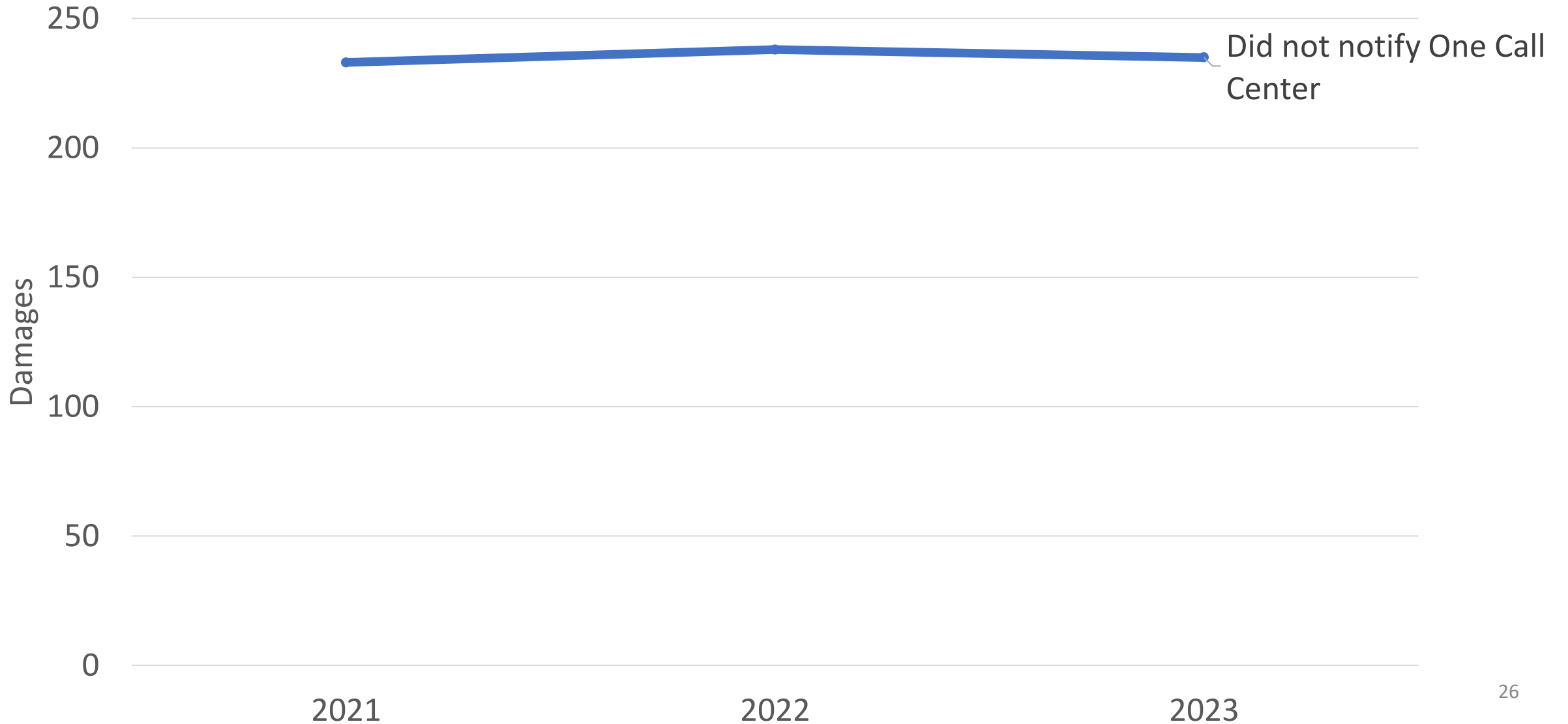


Root Cause - Excavation Practices

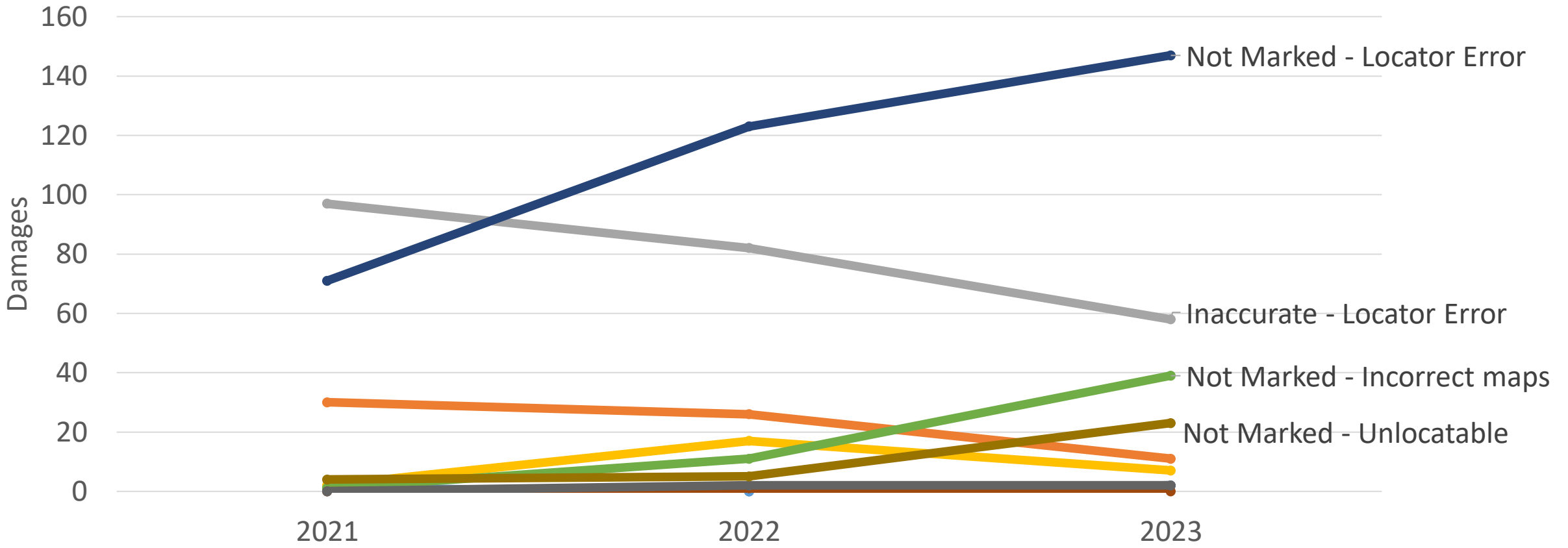


- Excavator dug prior to verifying marks by test-hole/pothole
- Excavator failed to maintain clearance after verifying marks
- Excavator failed to protect/shore support facilities
- Improper backfilling practices
- Marks faded or not maintained
- Other improper excavation practice

Root Cause - No Locate Requested

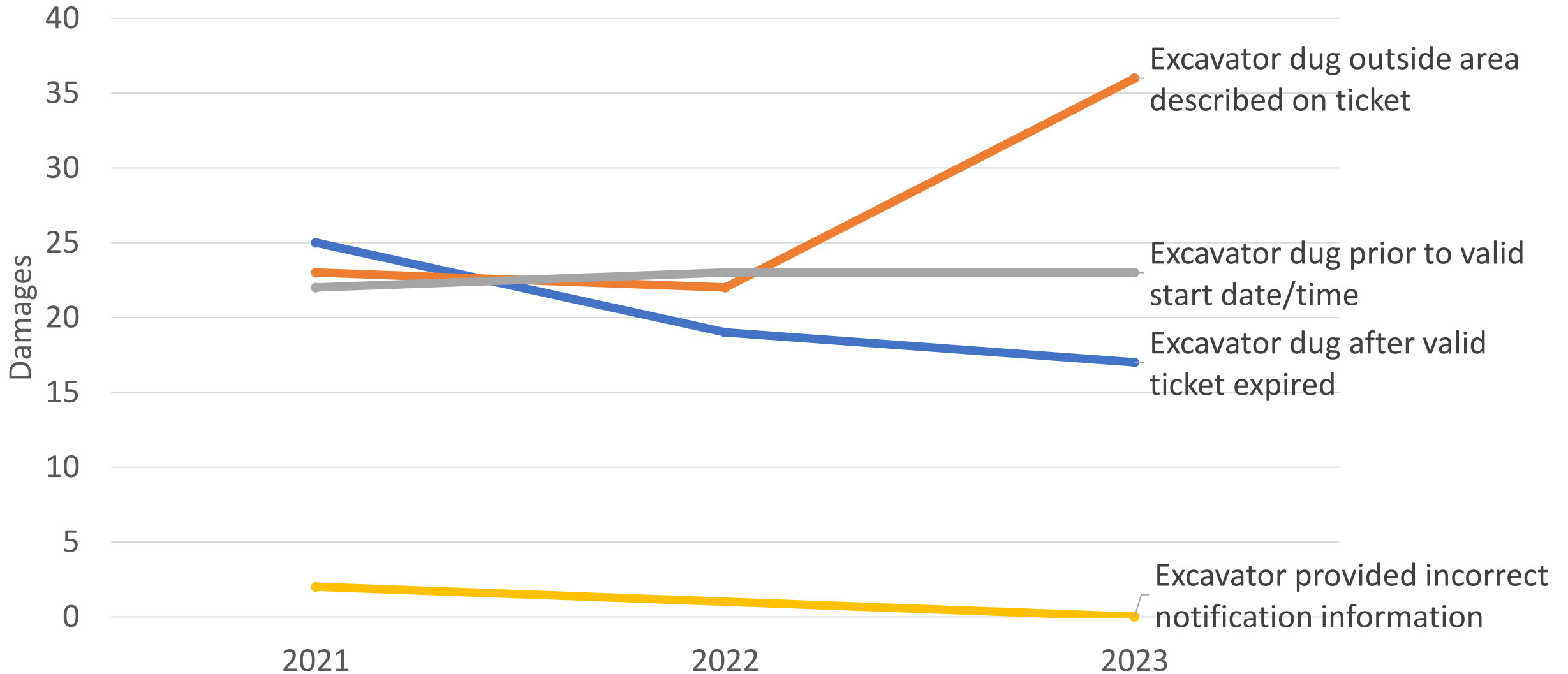


Root Cause - Locating Practices

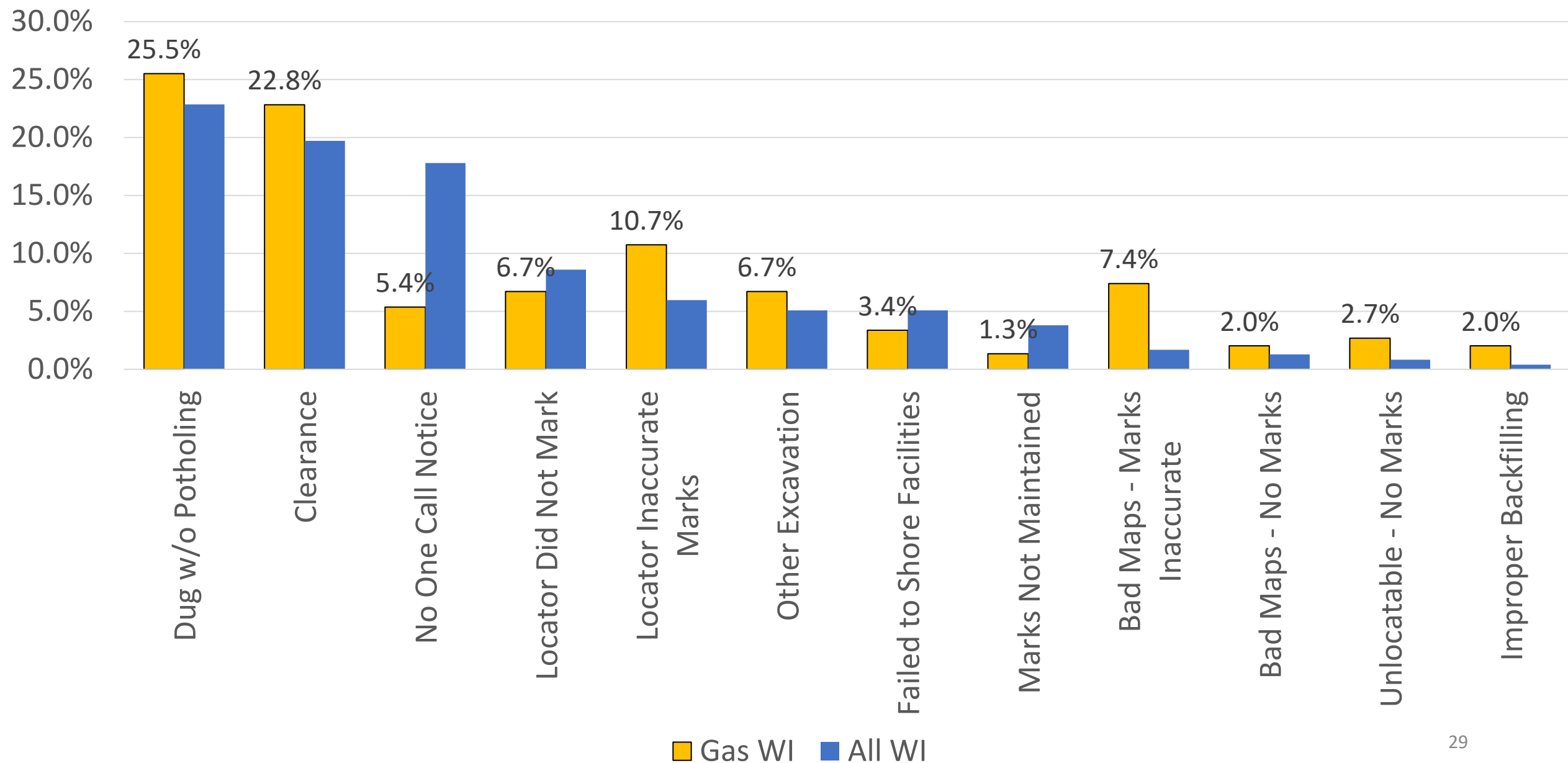


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Root Cause - Invalid Use of Request by Excavator



Root Cause – Gas WI vs All WI



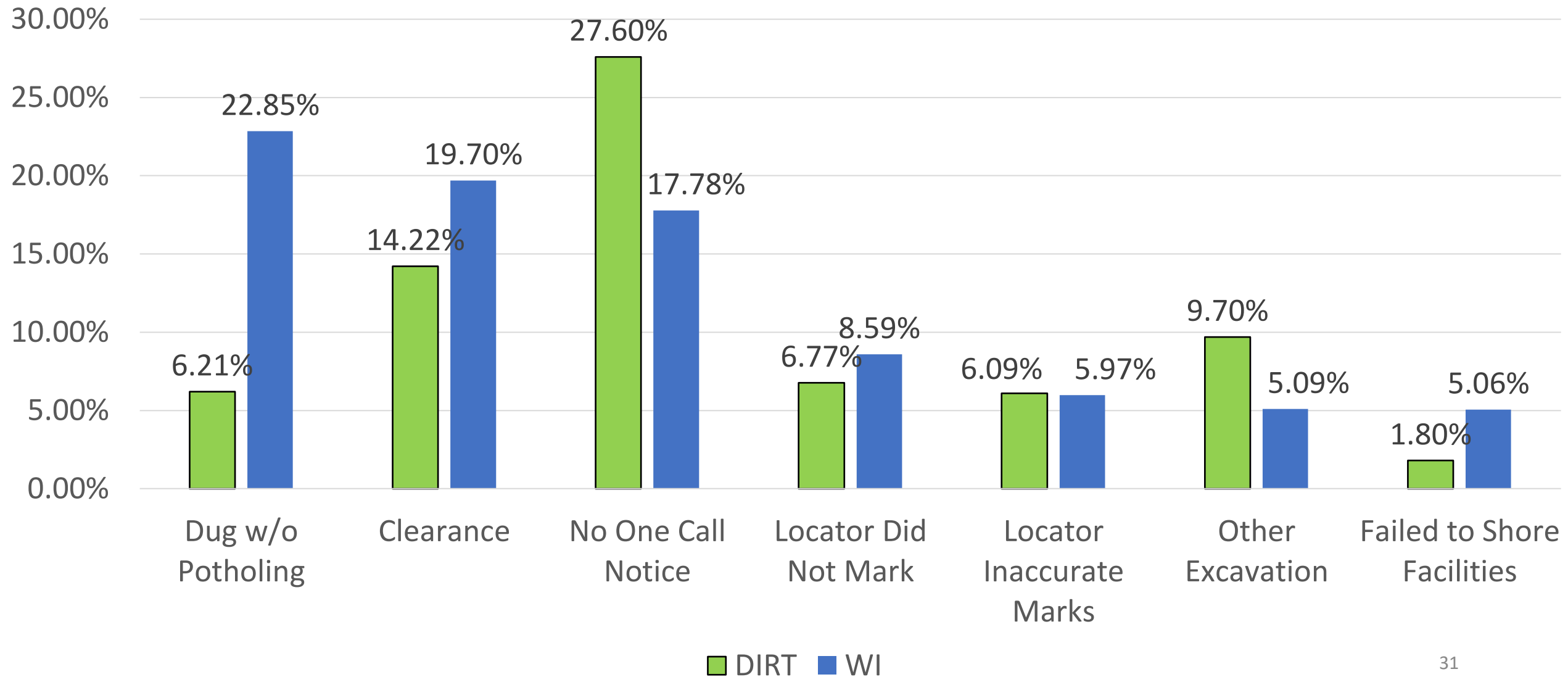
CGA's 2022 DIRT Report

Telecommunications and natural gas remain the most damaged facilities.

Telecommunications work contributed to the most damages, followed by water/sewer work.

Top Seven Root Causes - DIRT vs WI

Root Cause - DIRT vs WI



Changes vs Consistencies

- Total damages up slightly
 - Telecom damages up significantly
 - Root cause changes
-
- Think of new ways to address the consistent causes we see every year

Code

§ 192.614 - Each operator must carry out a written program to prevent damage to that pipeline from excavation activities

§ 192.617(a) - Each operator must establish and follow procedures for investigating and analyzing failures

§ 192.935(b)(1) - An operator must enhance its damage prevention program with respect to a covered segment to prevent and minimize the consequences of a release due to third party damage

§ 192.1007(e)(1) - Develop and monitor performance measures from an established baseline to evaluate the effectiveness of its IM program

Questions? Comments? Thoughts?

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