“Sound and Fury, Signifying Nothing”

Moving Excavation Readiness Beyond Rhetoric and Toward Truth Through a Call for Dialectic

B. Scott Crawford

President & CEO, Virginia 811

ALLIANCE FOR INNOVATION AND INFRASTRUCTURE

To Damage Prevention Stakeholders,

This white paper was written in the spirit of collaboration, dialogue, and healthy skepticism. Some noteworthy and admirable work has recently been done by Georgia 811 and the Common Ground Alliance (CGA) on the concept of excavation readiness. Working with available data, Georgia 811 created a model to serve as a guide to determine excavation readiness relative to the 811 process. CGA has used this model to help drive some overarching conclusions about excavation readiness nation-wide.

With the past several years having brought focus on the 811 process and the need for timely locate requests, this initiative is important. Nationwide, there have been critiques of the 811 process that suggest the primary means behind damage prevention and the protection of the integrity of the nation's underground utility infrastructure is under strain and possibly even ineffective. Such serious critiques demand further discussion and exploration.

While this white paper offers its own level of critique of the suggestion that excavation readiness is, according to CGA, a "coin toss," the intent is not to disparage Georgia 811's excavation readiness model or CGA's efforts. Georgia 811's excavation readiness model is *quite sound*! It is a thoughtful approach to determining excavation readiness within the 811 process. Similarly, CGA's focus on excavation readiness in its *DIRT Report* draws industry attention to a real challenge within damage prevention. Had it not been for this focus, and Georgia 811's work in this area, this white paper would never have existed! As Georgia 811's President & CEO, Meghan Rafinski, wisely observes:

> Receiving a response to a locate ticket by the legal deadline does not automatically authorize an excavator to begin work. In many states—including Georgia—a response is mandated by law, but not all responses provide the same information. What's truly insightful is understanding the context of those responses, not just their timely submission. While Virginia has taken a different approach to achieving this insight, the key takeaway is that it has initiated a data-informed conversation grounded in state-specific realities. We are happy to work with them to keep this discussion going.

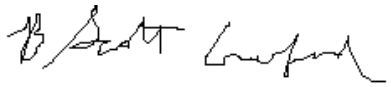
The leadership and forethought on the part of Georgia 811 and CGA is what moved Virginia 811 to examine excavation readiness, create a model, and form critique this paper advances. It is ultimately the wider discussion Rafinski mentions that Virginia 811 welcomes.

The reader will note the inclusion of philosophical and literary references that may seem out of place. This is purposeful. Excavation readiness is not simply a technical issue, as it is also a matter of public trust, system reliability, and the meaning we assign to data – not to mention how we approach and leverage data. The philosophical and literary references found within this white paper are intended to frame a deeper question: *What happens when narrative moves beyond evidence?* This question moves us away from data and into the realm of the humanities, thus these accompanying references.

This white paper is being published with the Alliance for Innovation and Infrastructure (Aii), the only nationwide public policy think tank dedicated to infrastructure. This paper is uniquely at home with Aii because it takes a step back from the damage prevention industry to reevaluate things from a broader context. Fittingly, Aii is not a stakeholder in the damage prevention ecosystem, but an independent third party providing our industry with objective research and educational resources on industry practices, nationwide trends, and public policy. With over a decade of damage prevention research under their belt, and a commitment to fostering transparency and progress in the industry, Aii aligns with the goals of this white paper, and it is my hope that this partnership will help expand this conversation even further.

Virginia 811 continues, as always, to support collaboration, innovation, and shared accountability. Ultimately, this white paper is an invitation, not a declaration or damning critique. It attempts to engage the myriads of stakeholders who all desire the same thing: safety and damage prevention. I welcome disagreement, dialogue, and continuous improvement. Above all, I hope this white paper will encourage us all to hold one another, as well as our data, to the highest possible standard. Safety depends on this.

Respectfully and Sincerely,



B. Scott Crawford
President & CEO
Virginia 811

Introduction

As Shakespeare's Macbeth stands on the eve of his defeat, and having learned his wife has just died, an interesting existential reflection unfolds. Macbeth states to Seyton (pronounced Satan!), his servant, that:

Life's but a walking shadow, a poor player
That struts and frets his hour upon the stage
And then is heard no more. It is a tale
Told by an idiot, full of sound and fury,
Signifying nothing.[1]

As Macbeth's illicitly gained kingship begins to crumble, he reflects on how we are all but actors on a stage. We, in this life, perform for a brief moment, and we are then "heard no more." Much of what we bombastically state on this stage are tales "full of sound and fury, Signifying nothing."

While Macbeth's performance both on the literal stage and – within the play – the metaphorical stage of life is about to end, his reflection on the tales we all tell through our lives and our tendencies, as actors, to lack substance in arguably both actions and words sparks our own need for introspection. This is especially true for business leaders operating in an age of "big data" and finding new and unprecedented ways to leverage data to advance agendas, prop up arguments, and support decisions. Add to this a communication revolution that bombards the actors on this stage with an overwhelming amount of information, resulting in greater successes for engaging audiences if it is sensationalized, and there is a perfect storm for information to be filled with, well, "sound and fury" while "signifying nothing." In this age of big data and mass communication, not all that is loud is meaningful.

This white paper examines how a well-intentioned and thought-provoking national narrative related to excavation readiness advanced by the Common Ground Alliance (CGA) in the *DIRT 2023 Analysis and Recommendations* report, released in October 2024 (hereafter the "Report"), could risk being perceived as a tale of "sound and fury" if it is accepted blindly and if it is not set within a broader context with clarity.

Specifically, in the report, CGA asks: "Can Excavators Start Jobs On Time?" The answer they provide?

> *"It's a coin toss."*

The report goes on to state that "Across 12 states, reported data on the percentage of tickets where all locates were delivered on time ranged from 30-70%, **with most hovering around 50%** [emphasis theirs]." This is a wide range, with no indication of how many of the 12 states were "hovering" around 50 percent excavation readiness, or at the "coin toss" rate.

Is the 50 percent excavation readiness group a significant majority? Is the range weighted toward 30 percent or 70 percent? Or is this an average of all 12 states? This is all unclear, yet based on this analysis, CGA states "Because of late or missing locates, **excavators have little predictability as to whether they will legally be able to begin work** on their planned start dates [emphasis theirs]."

The report goes on to note that the alleged 50 percent excavation readiness "contributes to excavators' failure of confidence in the 811 system. The confidence challenge needs to be addressed – particularly in order to make progress on reducing the top damage root cause year after year: failure to notify 811." Unfortunately, this assertion is not supported with any data, survey or otherwise.[2]

Not to question this narrative is to accept it. As the 19th century American philosopher and psychologist, William James, observed in 1896: "for to say . . . 'Do not decide, but leave the question open,' is itself a passional decision, - just like deciding yes or no, - and is attended with the same risk of losing the truth." This sentiment is more melodically advanced in Rush's 1980 song, "Freewill": "If you choose not to decide, you still have made a choice."[3]

Both James and Rush make us aware that inaction itself is consequential. In the case of CGA's excavation readiness narrative outlined in the Report, not to choose to question is passive acceptance. With the stakes in damage prevention and the protection of the nation's underground utility infrastructure being so high, inaction and passive acceptance is not ethical nor worth risking possible consequences that could undermine damage prevention.

CGA's focus on excavation readiness is an important and relevant topic. Delayed excavation due to locate requests not being cleared possibly contributes to billions of dollars in costs annually.[4] Excavators unable to safely excavate due to a locate request not being cleared within legally defined timelines and with accurate markings results in lost personnel productivity. Costs associated with rented equipment increase. Return of utility services following repairs may be delayed or possibly brand new services being delayed, all of which contribute to both economic costs and societal costs.[5] In order to understand the many nuances of the 811 process, using data to identify bottlenecks and challenges is essential. Stakeholders must first explore and define the problem before they can work together to find viable solutions.

While data is important, it is neither infallible nor the ultimate authority. Subjectivity and bias influence data at every step, from identifying a problem, framing the questions, gathering and analyzing the data, to how the data is visualized and communicated. Rather than empirical truth, analyzing and interpreting data is a "sensemaking task." As Garrett Grolemund and Hadley Wickham suggest:

> It [data analysis] has the same goals as sensemaking: to create reliable ideas of reality from observable data. It is performed by the same agents: human beings equipped with the cognitive mechanisms of the human mind. It uses the same methods.[6]

Within this context, "sensemaking creates subjective results that can vary from person to person and from time to time. It is common experience that different people come to different conclusions when presented with the same information."[7] However, most concerning is that research suggests when we analyze and engage data, we do so in a manner that reinforces preconceived notions and our idiosyncratic understandings of truths. In other words, it is generally a common practice that when we are exposed to data, even when data undermines assumptions, we interpret data in a manner that supports assumptions.

Another issue related to sensemaking and subjectivity is "abduction." Abduction, not unlike Occam's Razor, seeks the simplest and most plausible conclusion from an observation. For example, imagine you wake up and see the ground is wet. You might reason that it must have rained overnight. While rain is a possible explanation, it's not the only one, someone could have watered the lawn, or a pipe could have burst. This kind of reasoning, where you assume one explanation just because that data fits, is called abduction.[8]

This level of subjectivity related to data analysis, if anything, indicates that data provides a suggestion of truth, but rarely the full truth itself.

Data is a tool, or a vehicle, to propel a wider dialogue, hopefully, toward a clearer and stronger understanding of issues being examined. Data should, ideally, spark new and stronger *questions* rather than definitive *answers*. Ultimately, data should inspire dialogue that in turn leads to thoughtful decisions. The lack of dialogue is silence, and in the case of damage prevention, silence is not acceptable. As Albert Camus observed, "falsehood is just as much the opposite of dialogue as is silence, and the only possible dialogue is the kind between people who remain what they are and speak their minds." We as stakeholders must ensure that data is void of falsehood and that we maintain a free, and safe, environment where stakeholders can speak their minds.[9]

Setting data within this subjective context is a positive step for damage prevention. CGA is one of the national voices for damage prevention, but it is not the only voice. Other prominent national voices are, but not limited to, the Pipeline Hazardous Materials Safety Administration, National Association of Pipeline Safety Representatives, American Gas Association, American Public Gas Association, Pipeline Safety Trust, the Alliance for Innovation and Infrastructure, state one-call centers, and more. CGA's efforts depend on input from these, and other, organizations. Data from numerous sources with varying fidelity are submitted to CGA to understand and analyze the 811 process. CGA may report data within the *DIRT Report*, email blasts, and social media posts, in a manner that may make the information and conclusions seem certain rather than part of a wider discussion driven to find truth.

When conclusions derived from interpreting data are advanced by any entity, it is important the reporting agency is transparent. Reporting agencies, including CGA, 811 notification centers, and any damage prevention stakeholders, should clearly explain how their data was collected,

what assumptions were made, and elaborate on any weaknesses in their methods or conclusions. Through this transparency, a healthy skepticism can be introduced into data analysis that allows for, and fuels, open dialogue to help move discussions, and decisions, closer to truth. Ultimately, this paper aims to align with this ideal and invite a more transparent, context-aware interpretation of excavation readiness as well as, and most importantly, provide a foundation for continued dialogue rather than definitive declarations.

Pressure on the 811 Process

Virginia, and most, if not all, of the United States, has seen heavy excavation over the past five years. The COVID-19 pandemic, followed by the bipartisan Infrastructure Investment and Jobs Act (IIJA) – also referred to as the Bipartisan Infrastructure Law (BIL), federal support for rural broadband expansion, as well as replacement of lead water pipes and the modernization of municipally owned gas distribution pipes,[10] have resulted in massive construction activity in Virginia. In fact, there were three record years between 2020 and 2024 for locate request volume coming through the commonwealth's notification center, Virginia 811.

The most recent record year, 2024, was 7.7 percent over the previous record year in 2021. Not surprisingly, coinciding with this most recent record year, Virginia saw record years in locator no-shows, Three Hour Notices, and Multiple Three Hour Notices.[11] The pressure on the entire 811 process was real. Not only did increased locate requests bombard the system, but locate requests increasingly became focused on rural areas, which exacerbated the impact of the overall increase in the demand for underground utility locates.

Rural areas, where a low number of locators could historically handle normal locate demands, became strained as, without warning, locate requests increased substantially while locator numbers remained static. While noble goals unfolded to bring broadband to citizens in rural areas, the needed infrastructure to support broadband expansion was not in place. The resulting pressure on the 811 process resulted in Virginia stakeholders focusing heavily on the related no-show issue in various recurring meeting venues.

To help better understand the impact rural broadband initiatives were having on the 811 process, Virginia 811 engaged Dr. Jennifer Van Mullekom, Director of the Statistical Applications and Innovations Group (SAIG), Virginia Polytechnic Institute and State University (Virginia Tech), to conduct a statistical analysis of locate requests and several other factors perceived as contributing to no-shows. Dr. Van Mullekom's analysis suggests that rural broadband initiatives are a primary cause for pressure on the 811 system as a whole.[12]

Of course, perceptions that workforce issues contributed to this overall challenge of meeting the demand of increased locate requests in general, and in rural regions, are in all likelihood justified. Challenges related to recruiting, training, and retaining experienced locators all serve as

a backdrop to the larger no-show issue. Unfortunately, due to a lack of available data, with it being impossible to gather HR data from all contract locators and in-house locators, the analysis could not examine, in any statistically valid manner, the impact labor availability had on no-shows.[13]

Dr. Van Mullekom's analysis related to root causes of locator no-shows serves as the foundation upon which Virginia 811's later analysis of excavation readiness rests. Her analysis focuses on excavation readiness as being centered on no-shows; if the locate request had at least one no-show listed, it was not "excavation ready," while if it had no 'no-shows,' it was labeled "excavation ready."

Of course, there are other criteria used to determine if a site is truly excavation ready as of 7:00 AM the day locate responses are due through the Positive Response System. While these other criteria are factored into the excavation readiness model examined later in this paper, Dr. Van Mullekom's analysis was focused solely on excavation readiness as related to no-shows.

Through various recurring meetings throughout the state, stakeholders identified several possible root causes as driving this high no-show rate. In order to help bring clarity to the issue, Dr. Van Mullekom's analysis focuses on these identified possible root causes of no-shows: increased locate request volume, volume in geographic regions (rural, suburban, and urban), telecommunications work types, and fiber specific work-types.

Of particular importance was the impact Updates were having on the 811 process, as a general perception existed – and continues to exist nationally – that Updates are a primary driver behind locator no-shows.[14] Dr. Van Mullekom's statistical analysis of these items relative to locator no-shows challenges perceptions and reinforces the notable impact rural broadband expansion has had on the 811 process.[15]

The analysis covers the period between 2019 and October 2023, the period leading up to and encompassing the COVID-19 pandemic, and the beginning years of the implementation of the Bipartisan Infrastructure Law. Based on no-shows, she demonstrates that this period witnessed on-time responses dropping from approximately 96 percent in 2019 to approximately 89.5 percent as of October 2024.[16]

In 2025 Virginia 811 extended this analysis to include all of 2024. It was found that, based on this no-show-based excavation readiness model, approximately 87 percent of locate requests were ready for excavation when they were due. Based solely on a no-show-based excavation readiness model, between 96 and 87 percent of locate requests were completed on time (See Table 1). Overall, average excavation readiness during this period was approximately 92 percent.

Table 1[17]
Delayed Response Locate Requests at Virginia 811, 2019-Oct 2024

Year	Delayed Response Tickets	On Time Response Tickets	Total Tickets with Response Data	Percent Delayed Response	Excavation Readiness Percent
2019	54,874	1,330,030	1,384,904	3.96%	96.04%
2020	85,209	1,413,297	1,498,506	5.69%	94.31%
2021	119,725	1,461,903	1,581,628	7.57%	92.43%
2022	115,950	1,414,589	1,530,539	7.58%	92.42%
2023	135,163	1,150,836	1,285,999	10.51%	89.49%
2024	210,871	1,427,109	1,637,980	12.87%	87.13%

With no-shows accounting for an approximate nine percentage point decrease in excavation readiness between 2019 and 2024, the no-show issue was a valid focus for stakeholder frustration and justification, putting pressure on the 811 process. In relation to the examined possible root cause for no-shows, the analysis suggests the following: While overall locate request volume was high, volume alone does not serve as the driving root cause of no-shows. Linear regression demonstrates that even as locate request volume increased, no statistically meaningful weekly increases in ticket volume occurred between 2019 and 2023,[18] yet no-show rates per week increased dramatically. No-show rates increased at a much higher rate than did increases in overall locate request volume.[19]

While the analysis suggests that overall locate request volume was not driving no-shows, geographic dispersion of volume does suggest a correlation with no-shows. It is not overall volume; it is *where* volume is occurring that seems to be impacting excavation readiness in relation to no-shows.

Figures 1 and 2, comparing locate request volume and no-shows by county between 2019 and 2023, suggests that the rural areas of Virginia are struggling the most with no-show locates. These areas have been utilizing rural broadband initiatives funded through the BIL, impacting excavation readiness based on no-shows. Requests with telecom as a work type had a three percentage point and then seven percentage point higher instance of no-shows in Virginia than non-telecom requests in 2022 and 2023, respectively (Figure 3).

In regard to fiber work type, between 2022 and 2023 there was an 11-percentage point increase in no-show rates for fiber locate requests (Figure 4). As Figures 5 and 6 suggest, county counts of fiber work type locate requests coincide with county counts of fiber no-shows, suggesting a correlation between increases in fiber work types and no-shows by county.[20]

The following figures (Figures 1, 2, 5, and 6) display county-level data in the Commonwealth of Virginia. The graphics utilize a heat map data visualization, meaning darker colors represent more total tickets. A full-size map with labeled counties is presented first to help readers track where in the state more tickets are requested. Larger versions of some of the figures are presented in Appendix A.

County-level map for reference.

Figure 1[21]
Total Locate Requests by County, Month (Numbered on Right), and Year

Figure 2[22]
Rate of Delayed Response Locate Requests by County, Month (Numbered on Right), and Year

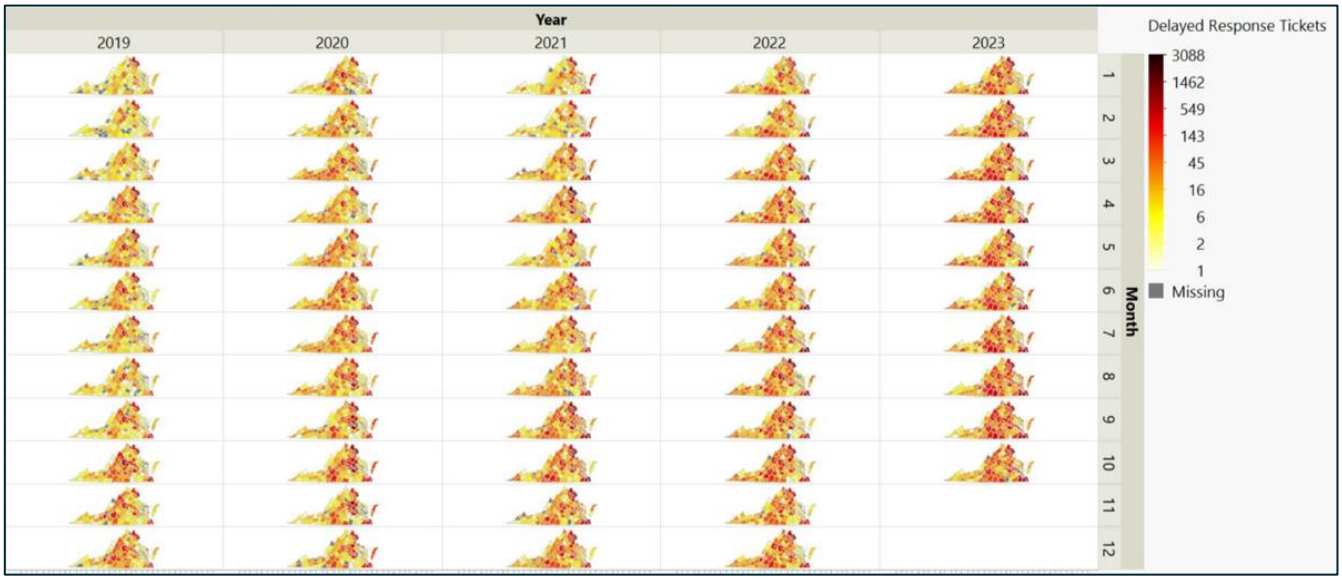


Figure 3[23]

Percent of Response Status by Year and Telecom (Yes or No)

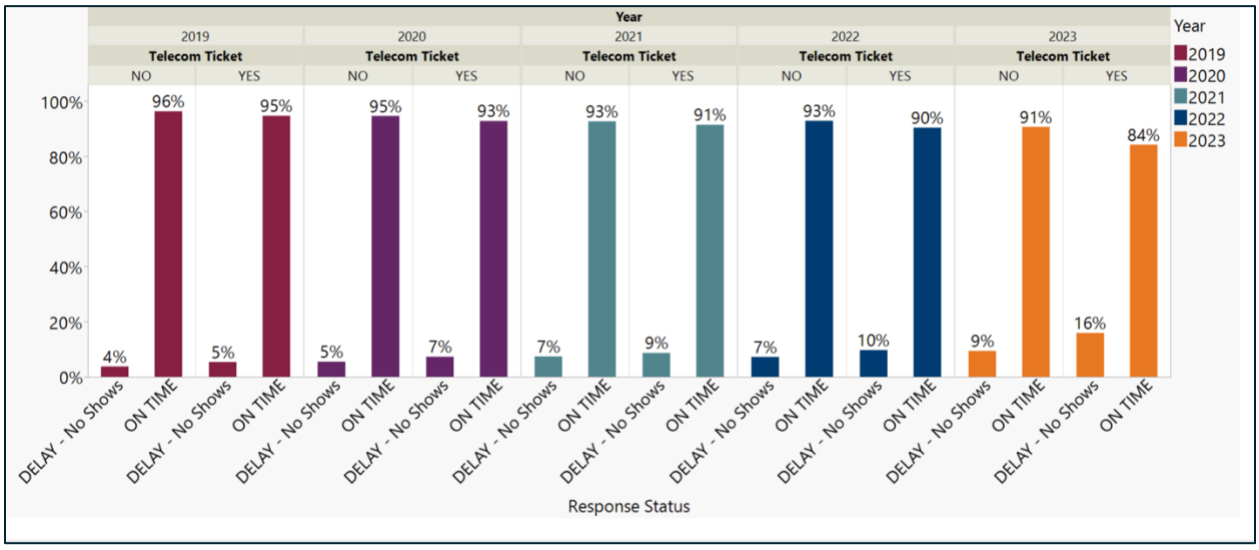


Figure 4[24]

Percent of Response Status by Year and Fiber Install (Yes or No)

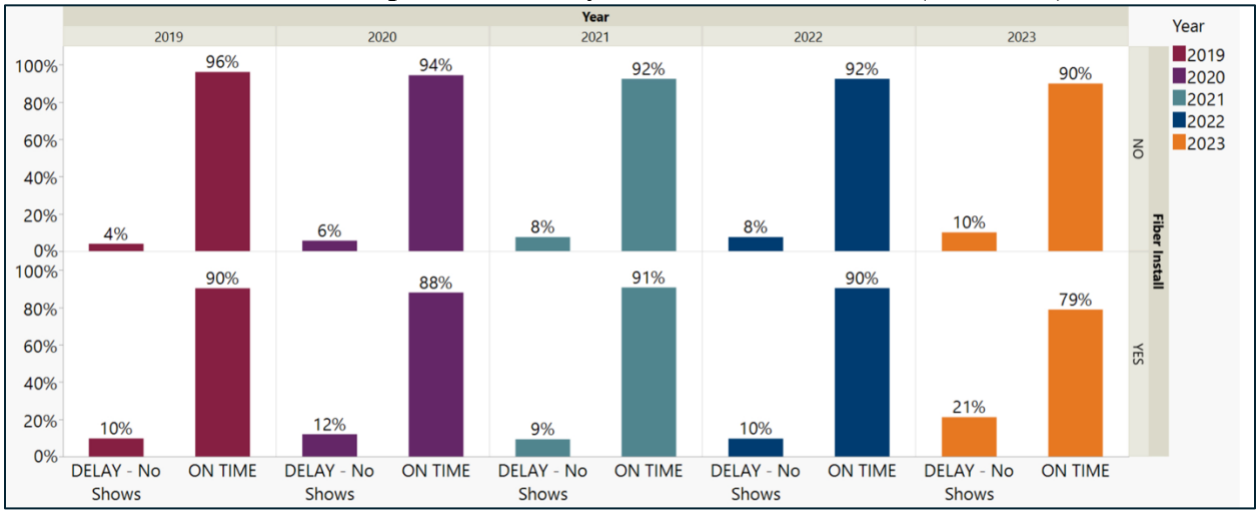


Figure 5[25]
Fiber Locate Requests by County, Month and Year

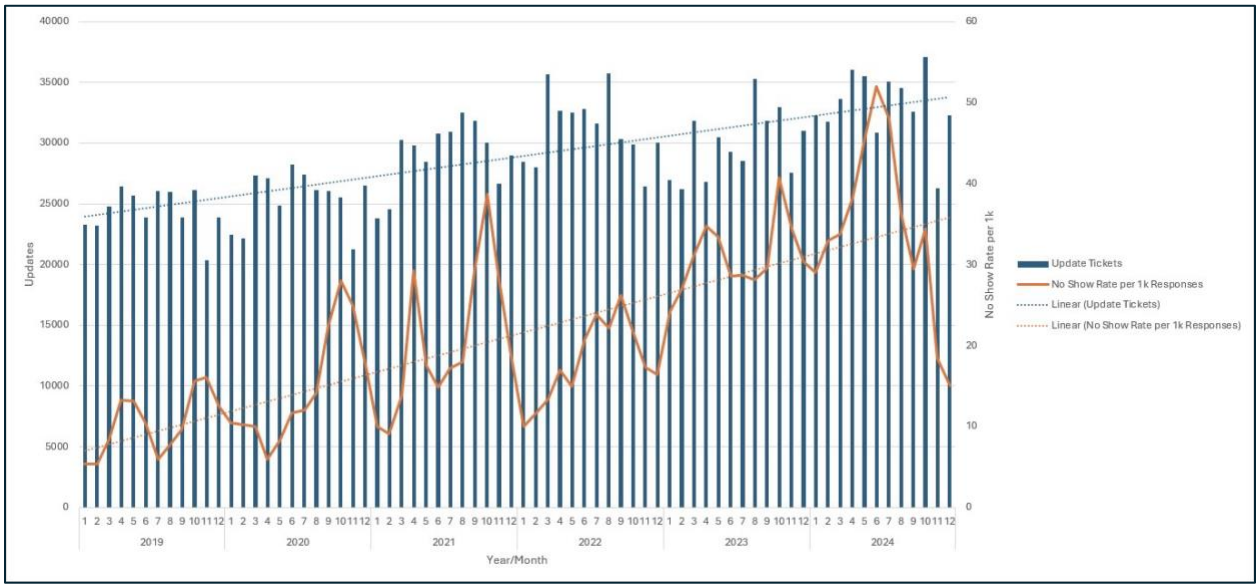
Figure 6[26]
Fiber No-shows by County, Month and Year

An ongoing narrative related to pressure on the 811 process, and a continued perceived key root cause of no-shows, is Updates, or "over notification." Over notification in this case references locate requests that describe an excavation area larger than the area that will actually be excavated, adding extra work for locators. Over notification may also include Updates that keep locate requests "live" and in the system despite no longer being tied to active excavation efforts, or the failure to decrease the excavation area description in line with actual excavation boundaries.

In the case of Virginia, however, the issue of "over notification" *does not* appear to be contributing in any way to no-shows or excavation readiness in general. Based on Van Mullekom's analysis, "differences [in excavation readiness based on no-shows] across ticket types [Normal, Remark, and Update] within years [2019-2023] are approximately one percent. [Updates] are not problematic overall."[27] Virginia 811's analysis of Updates reinforces Van Mullekom's conclusions.

Expanding this period through 2024, the data suggests that, at best, there is an unremarkable correlation between Updates and no-shows. Based on 72 data points between 2019 and 2024, a total of 39 individual data points (or 54 percent of data points) indicate that when Update volume increases, the number of no-shows decreases, or when Update volume decreases, the number of no-shows actually increase, a negative correlation. However, the overall Pearson correlation between Updates and no-shows is r = 0.18. A weak positive correlation between Update volume and the no-show rate.[28] The data clearly suggests that this is not strong enough to be a reliable predictive relationship (see Table 2).

Table 2
Monthly No-show Rates per 1K Responses vs. Monthly Total Updates, 2019-2024



Van Mullekom's analysis, supported by Virginia 811's additional data, suggests several important insights in relation to excavation readiness and pressure on the 811 process. Overall,

(1) general increased locate request volume is not the root cause of no-shows.

(2) The data and analysis suggest that the driving force behind no-shows across the state is regionally based, with

(3) no-shows concentrated most heavily in counties that are rural and witnessing increased telecom and, specifically, fiber related work types.

(4) While relative to overall volume, fiber install work types are small, they appear to be having an impact on no-show-based excavation readiness due to a concentration in rural areas. Rural regions have benefited from recent rural broadband expansion initiatives subsidized through the 2021 IIJA.

One of the more important conclusions suggested through this analysis is the low positive correlation existing between Updates and no-shows. While 54 percent of the months between 2019 and 2024 indicate a negative correlation between Updates and no-shows, the remaining 46 percent of the months are enough to, through a Pearson correlation, suggest that there is a weak positive correlation. This correlation, however, is in no way a driving or determining force behind no-shows.

Out of the need to clear the "noise" within the 811 system, and the inefficiencies produced by over notification, 811 centers should work with stakeholders to identify these problem locate requests. Excavation companies can review their project areas with over notification issues and determine if excavation is, or is not, still occurring. Excavation companies can then work on purging any unneeded Updates from the system. However, this particular issue is not, at least in Virginia, statistically the driving force behind no-shows and issues related to excavation readiness.[29]

While admittedly a simple model for determining excavation readiness – relying solely on no-shows determining if a site is excavation ready when the locate request is due – the analysis strongly questions CGA's national narrative that it is a "coin toss" as to whether excavation can begin on time. In Virginia, 87 percent of locate requests were responded to with a Positive Response within the legal timeframe in 2024, the year with the highest no-show rate. This equates to an approximately 74 percent improvement over a "coin toss." If across the nation it truly is a "coin toss" as whether excavation sites are excavation ready on time, then at the very least Virginia is well above this national average.

However, this particular no-show-driven excavation readiness model is imperfect, as it measures only one variable. In Virginia, there are other issues beyond no-shows that can cause delays to excavation readiness. Locators can submit several Positive Response codes prior to the due date that avoid a no-show but still prevent an excavator from being able to excavate.

In Virginia, Code 60 is one such code as it indicates that the excavator and locator have agreed to an alternate marking schedule. This code has been hotly debated in Virginia, as a perception exists that locators may resort to using this code without actually reaching an agreement with an excavator in order to avoid a no-show. In 2022, due to concerns that the then-current application of Code 60 was not aligned with Virginia's Damage Prevention Act, a task force of stakeholders created a new process for Code 60 use.

Beginning in 2023, Virginia introduced a "reversed enhanced Positive Response" function for Code 60 as excavators. Upon receiving a Code 60 from a locator, an excavator can "accept" or "decline" the Code 60 through email or Virginia 811's Excavator Response Management Application (ERMA) mobile app.[30] While a positive step toward documenting agreement, and helping to prevent locators from abusing Code 60, stakeholders agreed that the default for the use of this code should err with the locator. This means that if the excavator does not click on "accept" or "decline," at 7:00 AM when the locate request is due, the Code 60 code will be the Positive Response for that particular utility.[31]

However, with well over two years of data, only around six percent of registered Code 60s actually result in a Three Hour Notice where the excavator disputes this response, suggesting the locator may have entered the code without securing an agreement with the excavator. Similarly, looking at that same data over a two-year period, approximately nine percent of Code 60s are actually declined by excavators.

The availability of Code 60 as a Positive Response indicates that excavation readiness is more than simply determining a no-show rate. While other codes may delay excavation, such as Code 90, "Locator could not gain access to property," Code 60 involves a two-way interaction between locator and excavator. If the excavator agrees to Code 60, the question becomes "is the area excavation ready when the request is due if the excavator is agreeable to an alternate marking schedule"? For example, if the scope of excavation is 1/3 of a linear mile, and the locator and excavator agree that only a portion of that amount needs to be marked at the time the request is due, is the locate request "excavation ready"? As such, any excavation readiness model must account for nuances existing within different states and/or 811 center service areas.

The excavation readiness model advanced by Georgia 811 that currently serves as the basis for CGA's claim that excavation readiness, nationwide, is a "coin toss" is inapplicable in Virginia. This limitation from the Report made it clear that Virginia needed a modified, robust model to determine if excavation readiness is truly a "coin toss." This new model needed to include variables beyond no-shows to definitively prove that a coin toss comparison is not supported by Virginia's data and invites closer scrutiny.

Virginia 811 Excavation Readiness Model[32]

Virginia 811's excavation readiness methodology is designed to fairly and accurately assess how prepared excavation sites are by the due date, accounting for disqualifying events that can occur up to that point. This approach is tailored to Virginia's specific operational environment and incorporates layers of complexity to reflect real-world scenarios.

The model is built using Structured Query Language (SQL), a standard tool for querying and managing data in databases. To organize the filtering and exclusion steps, the model uses Common Table Expressions (CTEs). A CTE is a temporary, named result set that can be referenced within a SQL query, allowing complex operations to be broken down into modular, transparent building blocks. This structure ensures that each step of the methodology is traceable, efficient, and easy to audit.

The methodology begins by applying initial filters to isolate locate requests eligible to be considered "excavation ready." These filters focus the analysis on standard excavation requests by excluding special cases that are not relevant to standard readiness evaluation:

- *Priority = 'NORM'*: excludes RUSH (e.g., CNCL, 3HRS, 3HRD) and Emergency requests
- *Category = 'LREQ'*: excludes Design requests
- *Meet = 0*: excludes Meeting requests

Corrections (CRCT) are not excluded. In Virginia, locators may respond to either the original or corrected revision of a locate request. To reflect this, the model considers each revision for CRCT requests.

After establishing the eligible locate request pool (FilteredTickets CTE), additional CTEs identify disqualifying events:

- *FilteredCancels*: Captures locate requests canceled before their response due date. It does not include requests canceled *after* the due date, which do not impact readiness, as they did not affect the locator's original obligations.
- *Filtered3HRNotices*: Captures locate requests associated with Three Hour Notices processed for "clear evidence" issues, or disputes of Code 60 (extension requests). In Virginia, a posted Code 60 is considered valid unless actively disputed by the excavator via a Three Hour Notice.
    - Note: Identification of disputed Code 60s relies on a wildcard search within a text field. While highly reliable, minor anomalies may exist.
- *DisqualifyingResponses*: Identifies locate requests with disqualifying locator responses. This includes system-generated "late notices" (999/No-show codes) and specific responses codes (90, 91, 93, 94, 97) based on the latest locator response before the due date.[33]

The final list of "excavation ready" locate requests (ValidTickets CTE) is derived by systematically removing any locate request affected by the disqualifications above. This ensures

that only locate requests free from cancellations, Three Hour Notices, and disqualifying responses remain.

Excavation Readiness (ER%) is then calculated using the following formula:

$$ER\% = \left(\frac{x - i - d - c}{x}\right) \times 100$$

Where:

- x = total eligible locate requests
- i = locate requests with disqualifying responses (e.g., 999, 90, 91, etc.)
- d = locate requests with disputed code 60s or Three Hour Notices tied to Clear Evidence
- c = original locate requests that were canceled before their due date

This structured, evidence-based methodology ensures a transparent and defensible analysis of excavation readiness in Virginia, countering any reliance on anecdotal or sensational claims with clear evidence and professional rigor.

Application of Virginia 811 Excavation Readiness Model

Using the Virginia 811 Excavation Readiness Model, it is abundantly clear that CGA's suggestion that excavation readiness is a "coin toss" is not applicable to Virginia. This significantly weakens both the validity of CGA's assertion and the overall critique of the national 811 process.

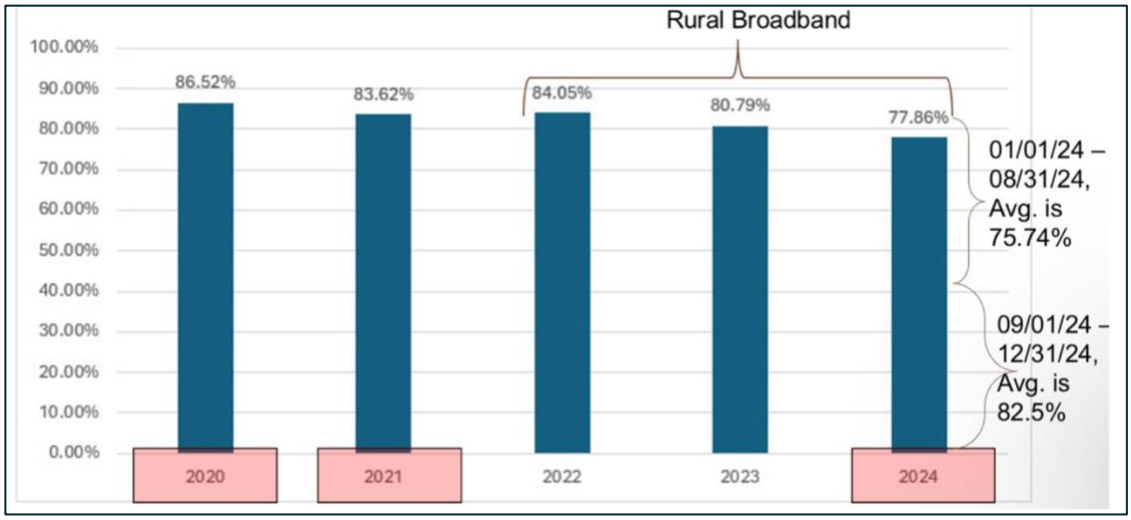
CGA only used 12 states' data, or 24 percent of the country, and a single excavation readiness model that may or may not have accounted for unique nuances found within different state laws. Each of those unique nuances play a part in the determination of excavation readiness. Furthermore, the question must be asked whether or not the 12 states selected by CGA represent a *statistically valid* sampling of total locate request volume nationwide? Any interpretation of findings for use on a national scale using CGA's model should *not* be advanced as definitive. Twelve out of fifty states is not necessarily a statistically valid sampling. Are the 12 states randomly determined? Do they reflect the diversity of the United States in terms of size, excavation activity, utility population density, mix of urban and rural areas, and the regulatory environment? Additionally, are the reporting metrics identical, similar, or even measuring the same variables? Any possible conclusions related to CGA's excavation readiness analysis needs to address these questions or provide clarity around possible bias.

While one state's data is not enough to undermine a general data-based conclusion, especially one that is inherently interpretive, if a rhetorically strong assertion is shown inaccurate in Virginia, a fair question to ask is "in how many other states is this not the case?" There is always the possibility of outliers within data sets, but such outliers need to be taken seriously as it becomes possible that the data set driving an assertion may itself contain outliers. Based on the

application of Virginia 811's Excavation Readiness Model, which accounts for unique nuances related to excavation readiness not accounted for in the Georgia 811 model, we can begin to explore at what level the rhetoric around "coin toss" verbiage and excavation readiness is, in the words of Shakespeare's Macbeth, "full of sound and fury, signifying nothing." Hopefully, as this white paper will suggest, we, as an industry, can move back from "sound and fury" and find meaningful dialogue that signifies something of worth.

Table 3 visualizes excavation readiness in Virginia between 2020 and 2024. The graph presents three record ticket volume years, 2020, 2021, and 2024 (highlighted in pink); the rural broadband expansion years, 2022-2024; and a breakdown of 2024 when a single contract locator was responsible for almost 30 percent of all no-shows in Virginia during the period of January to August 2024 and then after the issue was resolved, September through December 2024. Due to this notable no-show rate tied to one contract locator, the period of January through August 2024 is somewhat anomalous.

Table 3
Excavation Readiness in Virginia 2020-2024



Over this five-year period, using the Virginia 811 Excavation Readiness Model, average Virginia excavation readiness was 82.57 percent. During the pre-rural broadband years, 2020-2021, excavation readiness was 85.07 percent. During the rural-broadband years, 2022-2024, excavation readiness was at 80.9 percent, including the anomalous locator between January and August 2024. Placed within another context, during this period, five out of every six locate requests was ready on time, outperforming the roughly three out of every six the "coin toss" analogy would predict.

Conclusion

It is clear that the 811 process has witnessed pressure with the COVID-19 pandemic and major infrastructure legislation. This pressure has brought attention to damage prevention, suggesting that this tension is real and is something all stakeholders tied to damage prevention must not only be aware of but address. Data is one tool that can help with the advancement of solutions; however, data must be scrutinized, discussed, and even debated.

Any organization attempting to advance limited, or even possibly biased, data in a manner that is suggested to be truth is undermining fruitful dialogue and possibly stifling the discovery of innovative solutions to address the overarching issue. In this case, excavation readiness is at the heart of the current damage prevention challenge and we, as stakeholders must pause, refrain from simple rhetoric, and thoughtfully reflect on what we know. Only in this manner can we find the pathway toward the continuous improvement we all desire.

Even excluding the anomalous issue related to one contract locator in 2024, a 77.86 percent excavation readiness is nowhere near optimal. However, this analysis brings into question CGA's assertion that the 811 process is seemingly a "coin toss." Virginia 811's concern over such rhetoric, in significant tension with Virginia's data-driven findings, is that the "coin toss" assertion unjustly undermines confidence in the 811 process. This could result in undermining trust in a process that helps ensure underground utilities are marked in order to protect life, property, and the continuation of essential services.

While the coin toss rhetoric is concerning, Georgia 811's development of a model to determine excavation readiness is a definitively positive step in the right direction. As reported in the *DIRT Report* released in October 2024, Georgia 811's metric related to excavation readiness "**could serve as a guide** for other 811 centers in creating an industry standard for evaluating locating [emphasis theirs]." Georgia 811's metric directly influenced the creation of Virginia 811's excavation readiness model. However, CGA's assertion that "**811 centers across the U.S. must evolve toward a consistent methodology for tracking locating timeliness** [emphasis theirs]" is exerting energy in a manner that is not realistic or statistically valid.[34] Unique nuances in state laws, geography, utility density, and other variables make attempting to normalize data across the nation's one-call centers almost impossible.

Virginia 811, based on this analysis, advances the following as being positive next steps for the industry to further examine excavation readiness:

- CGA, Georgia 811, and any other interested stakeholders work with Virginia 811 to create a virtual panel discussion related to the issue of excavation readiness and how to calculate it.
- All 811 centers are encouraged, based on unique issues related to the laws governing their service areas and other unique demographic and economic variables, to develop statistically valid models to determine excavation readiness within their service areas and share their data through a common portal. Models should be reviewed by an independent statistical analysis team.

- CGA should refrain from using the "coin toss" or similar counterproductive rhetoric that could possibly discourage excavators and other stakeholders across the country from contacting 811 centers prior to excavation or participating in the 811 process.
- When discussing excavation readiness, unique state requirements should be accounted for and highlighted in any data review.

Successful public safety outreach requires consistent, positive messaging, utilized by all stakeholders to drive a unified message. When national stakeholders resorts to "coin toss" type messaging, it threatens to undermine all of the cohort group's efforts. While such rhetoric may bring attention to an important issue, the use of this rhetoric truly is a double edge sword. CGA should be commended for drawing attention to this issue. However, resorting to a strong use of rhetoric on the application of a single model to only 12 states' data is enough to question the validity of any broad conclusions.

The case study Virginia 811 offers in relation to excavation readiness highlights this concern. A collaborative effort among CGA, 811 centers, and other interested stakeholders may lead all of those involved in damage prevention closer to truth and a better understanding of how we in the industry can improve excavation readiness and damage prevention efforts.

In short, we stakeholders, working together, through embracing healthy skepticism and robust dialogue, should strive to avoid the "sound and fury" Shakespeare's Macbeth reflects upon on the eve of his demise and advance an epistemological construct better aligned with truth in order to truly improve damage prevention.

Appendix A

The following data is directly related to Figures 2 and 5. Due to limitations with graphic display, this representation of data is intended to provide a clearer reflection of the conclusions suggested by the referenced Figures in this white paper.

The detailed images below of Figure 5, Figure 1a, reflects the impact fiber related work types have had on rural areas. Comparing 2019 to the first 10 months of 2023, the period of the analysis, it is evident that fiber work types have increased dramatically. In 2019, the heat map shows fiber work types limited throughout the state, with some counties not witnessing any notable work types related to fiber installation as they are not depicted on the map. 2023 suggests a dramatic increase in fiber installation across the state with a notable increase of dark red counties. The darkened counties across the southern portion of the state are rural counties.

Figure 1a

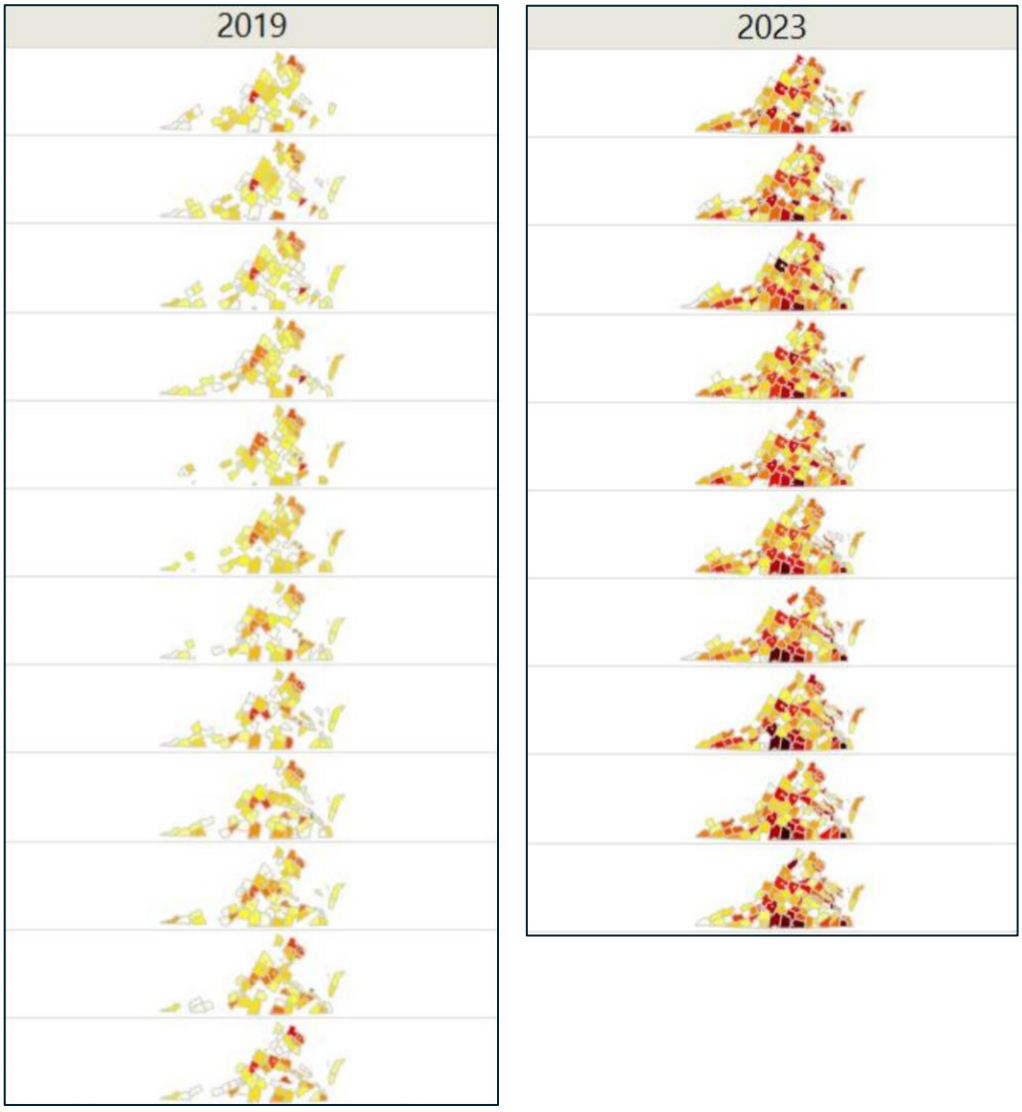


Figure 2a below, a detail of Figure 2, reflects regional trends of No Shows in 2019 and the first 10 months of 2023. The heat map reflects that rural counties, particularly in the southern, rural, portion of the state witnessed notable increases in No Shows.

Figure 2a

Figure 3a, below, represents a composite of portions of Figure 5 and Figure 2 from the first 10 months of 2023. Figure 3a reflects the correlation between regional fiber work types, the left column, and regional No Show rates, the right column. This visualization suggests that the rural broadband initiative has directly placed pressure on locators and overall excavation readiness.

Figure 3a

Based on this data analysis, overall, the details of the related Figures referenced within this white paper suggest that a correlation exists between rural broadband fiber expansion and No Shows, more so than correlations between other variables, such as “over notification.” With the exception of Northern Virginia, the overwhelmingly larger areas depicted in the details of the referenced figures are rural regions in Virginia, the areas that the rural broadband expansion efforts have directly impacted.

Citations and Notes

[1] William Shakespeare, *Macbeth,* Act V, Scene V. Found here, in the Folger Shakespeare Library: https://www.folger.edu/explore/shakespeares-works/macbeth/read/5/5/.
[2] Common Ground Alliance, *Dirt Report: 2023 Analysis and Recommendations* (Oct 2024), 22, found here: https://dirt.commongroundalliance.com.
[3] See William James, "The Will to Believe," An address to the Philosophical Clubs of Yale and Brown Universities. Published in the *New World,* June 1896, found here: https://krypton.mnsu.edu/~jp6372me/THE%20WILL%20TO%20BELIEVE%20.pdf; Rush, "Freewill," *Permanent Waves,* (Morin-Heights, Quebec: Le Studio) 1980. Special thanks to Dave Thompson with Bruce Howard Contracting, Inc., for pointing out the Rush lyrics during a stakeholder meeting when portions of white paper were being presented.
[4] CGA has noted this cost in several *DIRT Reports.* See, for example, the 2016 and 2019 *DIRT Reports, https://commongroundalliance.com/Tools-Resources/Resources-Library/searchCustom/true/PID/924/FilterMenu/973/FilterCategories/39.* In 2022, the Infrastructure Protection Coalition released an arguably sensationalized National Report titled *811 Emergency: $61 Billion Lost to Waste, Inefficiency in System to Protect Underground Utilities.* While the report repeatedly highlights the $61 billion figure, it never clearly explains exactly how this number was calculated. It also claims that following its recommendations would reduce losses by roughly 44% over three to five years but provides no clear methodology for this estimate. Like the CGA reports, it lacks transparency in how its figures are derived, providing another example of "sound and fury, signifying nothing." See "Infrastructure Protection Coalition 811 Emergency Reports," June 2022, https://www.ipcweb.org/reports.
[5] CGA defines societal costs "as routine costs for stakeholders directly connected to a damaged facility" that do "not include costs such as property damage, evacuations, road closures, environmental impacts, lawsuits, injuries, and fatalities." See *DIRT Damage Information Reporting Tool,* Common Ground Alliance, Vol. 13, August 2017, https://commongroundalliance.com/Portals/0/Library/2020/DIRT%20Reports/DIRT%202016%20Annual%20Report_081017_FINAL_Updated_09.20.17.pdf?ver=2020-08-12-025927-070. While this effort to define societal costs related to underground utility damages is valuable, the methodology is flawed. The model relies on incomplete data, uses subjective cost multipliers, and lacks transparency, making it more useful for raising awareness than policy making.
[6] Garrett Grolemund and Hadley Wickham, "A Cognitive Interpretation of Data Analysis," *International Statistical Review,* vol. 82, No 2 (August 2014): 189.
[7] *Ibid.,* 189.
[8] *Ibid.,* 196-198.
[9] Albert Camus, "Statement made at the Dominican Ministry of Labour-Maybourg, 1948, translated by JustinO'Bien, *Resistance, Rebellion, and Death* (New York: Vintage Books,1960), 70. For discussion on the subjectivity of data and the concept of 'capta' (interpreted, rather than objective truth), see Johanna Drucker, *Graphesis: Visual Forms of Knowledge* (Cambridge: Harvard University Press, 2014). For an overview of challenges in collecting and visualizing data, and standards for strong data display, see Edward R. Tufte, *The Visual Display of Quantitative Information, Second Edition* (Cheshire, CT: Graphics Press, 2001), especially pp. 16-20. Tufte's analysis of cancer death rate maps (1950-1969) shows how apparent geographic trends were misleading due to inconsistent data collection practices across counties. This example parallels issues in the DIRT Report, where varying state laws and reporting standards complicate definitive conclusions.
[10] In Virginia, privately held gas distribution companies have been able to replace and recover costs under the Virginia SAVE Act. SAVE targets "eligible infrastructure" that enhances safety, reliability, and reduces greenhouse emissions, among other things, under §56-60 since 2010.
[11] In Virginia, the operator or contract locator is required by law to respond to a locate request and report the marking status to the Positive Response System by no later than 7AM on the third working day following the excavator's locate request, unless a scheduled excavation date is provided by the excavator to the notification center… Any scheduled excavation date shall be not less than 48 hours nor more than 12 working days from the date of the locate request. For scheduled requests, the locator shall respond by no later than 7AM on the scheduled day of

excavation. If no positive response is entered by the time it is due, code 999 is entered indicating a "no-show;" the locator failed to respond within the timeframe indicated. Excavators can submit Three Hour Notices when there is clear evidence of an unmarked utility and/or they are disputing a specific positive response or positive responses. If the issue is not addressed within three hours, the excavator can then submit another Three Hour Notice.

[12] Dr. Jennifer Van Mullekom, "VA811 No-show Root Cause Analysis," Presentation delivered to Virginia damage prevention stakeholders at a Virginia 811 Stakeholder Meeting, December 15, 2023, Roanoke, Va. Copies of this presentation were provided to attendees and is available upon request by contacting B. Scott Crawford, President & CEO, Virginia 811, scrawford@va811.com.

[13] In an attempt address this issue, Virginia 811 team members researched census records and federal labor statistics to attempt to identify numbers of locators in Virginia in 2019-2022. This research suggests that during that period there was a ~3% decline in the number of locators in Virginia which coincided with a ~240% increase in "Fiber-Install" work type requests. However, the methodology used to determine the number of locators in Virginia is not reliable, so no definitive conclusions can, or should, be gleaned from this specific research.

[14] In Virginia, an Update is a new request that is created from a previous request that is about to expire. The Update contains all the same information from the original request, including, but not limited to, the excavation area description and utilities notified. Within the industry as a whole, there is much discussion around "over notification," where excavators continually update requests that are either no longer being tied to any excavation or that contain an excavation description that is larger than what is still being excavated. In Virginia, Update tickets are independent tickets that result in a new locate request and require notified operators to respond to the ticket.

[15] Van Mullekom, "VA811 No-show Root Cause Analysis," 2023.

[16] *Ibid.*

[17] *Ibid.* 2024 data was compiled by Virginia 811 and added to the table created by Dr. Van Mullekom. For this paper, the column titled "Excavation Readiness Percent" was added as well for clarity.

[18] *Ibid.* While the full analysis covers 2019 through October 2024, this portion focused on 2019 through 2023 due to 2024 not having ended at the time of the analysis, thus the full year's data was not available.

[19] *Ibid.*

[20] *Ibid.*

[21] *Ibid.*

[22] *Ibid.*

[23] *Ibid.*

[24] *Ibid.*

[25] *Ibid.*

[26] *Ibid.*

[27] *Ibid.*

[28] The Pearson correlation was determined by providing raw data to ChatGPT.

[29] Van Mullekom, "VA811 No-show Root Cause Analysis," 2023.

[30] This is the process for Code 60 as of this writing. However, by July 2025, due to Virginia 811 going through a center software conversion, switching to the Irth Exactix Center Software solution, there will no longer be a need to use ERMA. Excavators will be able to accept and decline Code 60s through email or within the Exactix platform.

[31] While the Code 60 will default as the Positive Response code if the excavator does not accept or decline the Code 60, this default setting changes on subsequent Code 60 responses if the excavator declines the first Code 60 the locator submits for a locate request. If, after the excavator declines the first Code 60, the locator submits another Code 60 for the locate request, the excavator must accept that Code 60 for it to register as the Positive Response. This prevents the locator from simply re-submitting Code 60s hoping the excavator misses the accept or decline notification in order to avoid a no-show.

[32] This section, "Virginia 811 Excavation Readiness Model," was written by Kenny Spade, Virginia 811's Manager, Data Analytics & QA/QC. Mr. Spade is responsible for the creation of Virginia 811's excavation readiness model, which is only applicable to Virginia and should not be used in other states. It is the hope of Virginia 811 that Georgia 811's and Virginia 811's models can be used for other 811 centers to use as a guide to create their own excavation readiness models to contribute to a wider understanding of overall excavation readiness than currently exists or that exists through the use of a "one model fits all" approach.

[33] For Positive Response codes, see https://va811.com/resources/laws-and-regulation/positive-response-codes/.

[34] Common Ground Alliance, *Dirt Report: 2023 Analysis and Recommendations,* 23.

Author

B. Scott Crawford,
President and CEO, Virginia811

For more information or inquiries on this report, please contact the Aii Media Coordinator at info@aii.org

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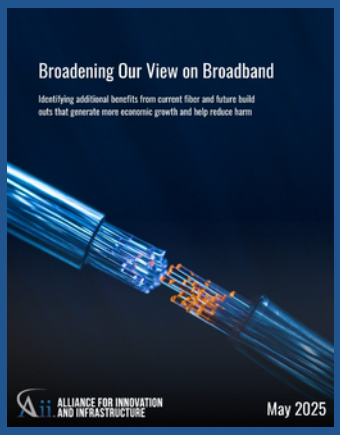

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