

“Infrastructure Protection Coalition”



DCCA **NUCA**
DISTRIBUTION CONTRACTORS ASSOCIATION *We Dig America*



PCCA
Power & Communication Contractors Association

811 Emergency

Utility Locate Study Results

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March 5, 2022

Access the Study at

www.ipcweb.org

Objective & Agenda

▶ Objective:

- Status update on study rollout, stakeholder engagement, and next steps

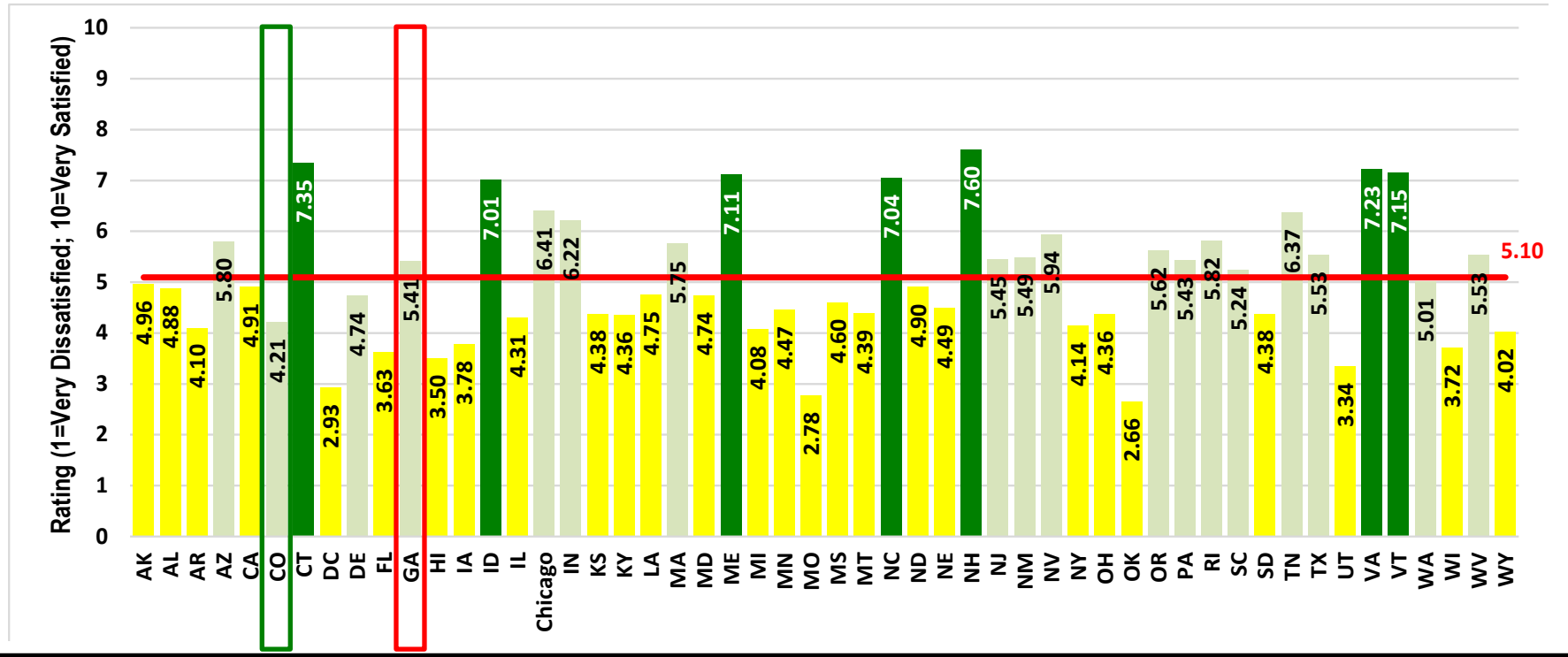
▶ Agenda

- Study Objective & Results Overview
- Rollout & Stakeholder Engagement
- Infrastructure Protection Coalition (IPC) Next Steps
- Q&A

State Ranking & Stakeholder Perspectives

- ▶ All Stakeholder feedback on satisfaction –
 - 811/Regulator; Utility/Asset Owner; Locator, Contractor responses combined

Exhibit x
Stakeholder Satisfaction



“Who Really Pays?”

- ▶ Hypothesis: That the inefficiency, waste, broken process, and broken practice costs migrate toward the highly regulated utilities and more specifically the gas and electric utilities.
 - One Example:
 - Telecom utility hires a 3rd party locate firm based on lowest submitted pricing on a per ticket basis as the only criteria for their selection.
 - The 3rd party locator exhibits high employee turnover, resource restrictions, difficulty in completing effective training and locate accuracy, and inability to comply with notice period.
 - » Contractor performing work for a gas utility, near telecom assets that are inaccurately located or unlocated, makes emergency locate request and incurs wait time.
 - Emergency locate request goes unfulfilled – contractor abandons site and moves to different location or moves forward implementing “defensive excavation” practices. Contractor time tracking system identifies and records “recoverable lost time” associated with this situation.
 - At next contract renewal of the gas utility contract, the contractor incorporates into submitted pricing the experienced “recoverable lost time” in order to achieve reasonable cost recovery and profit.
 - At next rate case, utility incorporates into its rate request the contractor pricing.

Source of the Waste & Savings

- ▶ Waste Calculated based on 3 types of locator wasted time added to contractor wait time specific to each state and totaled together = \$61 billion
- ▶ Recommendation Cost based on state specific recommendation cost
- ▶ Savings Calculated based on impact of recommendations paired with specialty best practices like Subsurface Utility Engineering (SUE) as part of the solution and doorway to access the reduction in damage frequency, waste, and wait, in each state - when and added together = \$40 billion offering a 33x ROI

Exhibit 3
National Utility Locate System Cost Impacts

System Cost Category	Current Conditions	Recommendation Cost (Millions)	Damage & Waste Reduction %	Damage & Waste Reduction \$ (Millions)
2019 Damage Frequency	450,000	\$1,200.00	40%	(\$11,000.00)
Damage Severity	nc		nc	nc
Unneeded Locates	Often (10%)		45%	(\$250.00)
Poor Instruction to Locator	Daily (>10%)		45%	(\$200.00)
Destroyed Marks	Often (8%)		45%	(\$200.00)
Contractor Wait Time	Often (8%)		51%	(\$29,000.00)
			Total Reduction	(\$40,650.00)

Source: Proprietary Continuum analysis.

Nationwide Recommendations *(1 of 2)*

Approximately **\$40 billion** of the **\$61 billion** can be driven out and the state specific reports offer a “clear line of sight” regarding how, at what cost, and to what end each state can undertake process improvement and ultimately achieve both a lower “total cost” system and one that yields superior public safety performance.

1. No Exemptions: Require all asset owners and operators, including municipalities and DOT, to join and participate in the 811 system.
2. Mandatory Damage Reporting*: Refine the dig law to require reporting of all damages (not necessarily investigation into all damages) to support more effective damage adjudication and enforcement.
3. Balanced Enforcement: Cause enforcement authority to weigh involvement of all primary participants in a damage and in a fair and balanced fashion hold the asset owner, excavator and locator responsible in the damage adjudication process.
4. Third Party Enforcement Board: Develop or enhance 3rd party investigation and enforcement board, with a balanced number of representatives from each stakeholder group, imbued with both responsibility and authority to manage the entire damage adjudication process.
5. Standardize Minimum Notification Time*: Standardize the ticket notification time to a minimum of two full business days after the day/date of a call.
6. Ineffective Penalty Structure: Bring balance to the penalty structure or amount so that asset owners, excavators, and locators all face similar risks and responsibility.
7. Effective Metrics: Identify, develop, collect, and track metrics that effectively support trending and continuous improvement of the state damage prevention performance.

*Four recommendations together, saving locator wasted time, GPS/GIS application, and mandatory reporting, are designed to create space for and support the implementation of Subsurface Utility Engineering (SUE).

Nationwide Recommendations *(2 of 2)*

8. Annual Reporting to CGA and DIRT: Require state entity(s) responsible for the oversight of the 811 system and collection and adjudication of compliance or damage reports, ticket volumes, etc. to submit data to the Common Ground Alliance (CGA) to support preparation of the annual DIRT report.
9. Positive Response Requirement: A web based electronic positive response requirement by all asset owners / locators through the 811 system. Ticket holders can choose how to receive positive response from this electronic system.
10. Excavation Site Accurate Description*:
 - 1) Premark / White-line Requirement*: Required pre-mark or white-lining of any proposed excavation area that includes traditional reference to intersecting streets / roadways paired with one or more of the following options:
 - GPS coordinates
 - Electronic white-line using aerial image(s)
 - Physical white-lining using white paint or flags
 - 2) GIS System Adoption by Asset Owners: By 2030, cause all asset owners to adopt a GIS system for asset mapping and require notification through 811 using GPS coordinates.*This requirement applies regardless of excavation length.
11. Continuous Improvement: Develop a culture of continuous improvement within the 811 system and more broadly through stakeholder education and public outreach programs.
12. Standardize Ticket Size, Distance, Duration, and Life*: Standardize the ticket size, distance, duration, and life to the described characteristics.
13. Educational Resources: Develop and publish electronically an excavators manual that is updated and republished every 5 years or when an update to the law takes place, whichever is more frequent.

*Four recommendations together, saving locator wasted time, GPS/GIS application, and mandatory reporting, are designed to create space for and support the implementation of Subsurface Utility Engineering (SUE).

Rollout & Stakeholder Engagement (1 of 3)

- ▶ 11/17/21 – Initial Press Release & www.ipcweb.org launch
 - https://www.prnewswire.com/news-releases/811-emergency-61-billion-lost-in-system-to-protect-underground-utilities-301426755.html?tc=eml_cleartime
- ▶ 1st Week Rollout
 - Website
 - 1400 site visits – 72% explored the site – average visit 30 minutes
 - Press Release Coverage
 - 200+ outlets posted or covered the press release potentially touching an audience of 110 million people
 - 20+ articles written and published about the study going into more detail and discussion
 - Substantial social media exposure, primarily through LinkedIn and Twitter

Rollout & Stakeholder Engagement (2 of 3)

► Stakeholder Engagement

- Strong reactions and engagement setting the stage for follow up & action
- Engagement Examples
 - 11/19/21 - NUCA Safety Forum
 - 12/2/21 - Common Ground Alliance Webinar
 - December – Federal Highway Administration (FHWA)
 - 1/12/22 - PHMSA-NARUC-NAPSR Webinar
 - February – NUCA Damage Prevention Committee Webinar
 - 3/3/22 – Global Excavation Safety Panel
 - 3/4/22 – NUCA Annual Convention
 - 3/5/22 – PCCA Annual Convention
 - 3/27/22 – APCA Annual Convention
 - 4/6/22 – CGA Conference & Expo
- Stakeholder Interaction
 - 24 states (AL, AR, AZ, CA, CO, CT, GA, IN, KY, MI, MO, NC, NE, NV, NY, OH, OK, OR, PA, SD, TN, TX, WA, WY) and NAPSR provided some type of feedback to date.
 - IPC response already to sent: AL, CA, GA, IN, MI, MO, NC, OH, OK, TN, TX
 - IPC responses ready to send: AZ, CO, CT, PA, NV, NAPSR
 - Feedback to date is general in nature and no response is yet merited: AR, KY, NE, NY, OR, SD, WY

Rollout & Stakeholder Engagement (3 of 3)

► Report Updates

- 52 reports have been reviewed based on stakeholder feedback
- Errors and updates are infrequent and inconsequential to waste and wait time identified in the study
 - Across all 52 reports, 4,160 (80 data points x 52 reports) data points presented where 3,952 (76 data points x 52 reports) data points were offered for information purposes only and are not related to the rating and ranking of the states into quartiles or related to the calculation of the waste described in the study.
 - Of the 4,160 data points, 1-2% of them will be in error based upon the feedback received to date.
 - As an example, in the TN report, from the 80 data points and we confirmed 3 errors – 1) addition to history; 2) Removal of the call day as free day as part of the notice period; 3) Board composition changed.
 - 100% of the errors are going to be in the data points presented for offered for information purposes only and are totally unrelated to the core study findings of waste and how to remove it
 - Across all 52 reports, there were 344 recommendations made.
 - Of these 344 recommendations, we are aware of only 5 recommendations (1%) that we should not have made. In three of these cases, we were working from the 2020 version of the law and the law was updated in 2021 which we overlooked.
 - As an example, the TN report is one of them where 1 recommendation (Ineffective Penalty Structure) should not have been made due to the law update in mid-2021 that we overlooked.

IPC Next Steps Proposal

- ▶ 2022-2023 – 6 part integrated offensive strategy to span the gap to the 2023 legislative season and keep the study front and center.
 1. Report Addendum & Additional Research
 - Objective: Create new and additional content from existing data collected to continue to deliver content into the public sphere and continue to both keep high visibility and raise awareness of the study results and ability to generate high value impact.
 2. Speaking/Presenting
 - Objective: Pursue, prepare, and deliver content into the public sphere and continue to both keep high visibility and raise awareness of the study results and ability to generate high value impact.
 3. Publishing & Writing
 - Objective: Put more content into the public sphere and continue to both keep high visibility and raise awareness of the study results and ability to generate high value impact.
 4. Legislative Support
 - Objective: Support state by state efforts to update and refine legislation or regulatory rules in support or driving out waste or wait time and reduce the frequency of damages.
 5. Press Releases
 - Objective: Keep the pressure up and refresh the study results with new information periodically. This effort will decelerate after April 2022 and run quarterly after that into 2023.
 6. IPC Website
 - Objective: Update the website to support keeping the pressure up and refresh the study results with new information periodically.

Question & Answer

Thank You

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Mark Bridgers

Mark founded and leads a Utility Vertical Market team team at Continuum Capital. He works with gas/electric utilities, power generators, pipeline companies, and energy companies. As a recognized expert in capital construction and operational challenges, Mark was recently honored with membership in the Society of Gas Operators (SOGO) and the Gild of Ancient Suppliers.

Mark helps firms prepare for and successfully navigate “strategic transitions.” His passion is helping organizations achieve breakthrough innovations through collaborative or integrated relationships. He is the architect of an approach for integrated service provider management referred to as the “Extended Enterprise” among construction industry participants.

Mark is an avid educator, trainer, and writer with more than 20 years of industry expertise including financial performance analysis; development and implementation of tools to reduce construction cost, life-cycle cost, and operational friction; restructuring of processes and procedures - often times using LEAN Construction techniques; and leader development.. He is a recognized expert in capital construction and operational challenges . Mark is also author of over 150 articles and research papers published internationally in industry journals, including ENR, PE – The Magazine for Professional Engineers, Pipeline & Gas Journal, Utility Contractor (NUCA), Underground Contractor, Electric Energy (RMEL) and Electric Perspectives (EEI).

Mark holds a master’s degree in business administration from the University of Virginia’s Darden school of Business and a bachelor’s degree in financial management from Clemson University. In addition, he earned the designation of Chartered Property and Casualty Underwriter (CPCU) and Associate in Reinsurance (ARe).



The following pages contain questions received as part of a virtual meeting sponsored by Common Ground Alliance (CGA) on December 2, 2021 for 811 directors around the country. The responses were prepared by Continuum after this session and submitted back to each of the participants.

The questions and responses are provided for informational purposes.

Post Meeting Q&A (1 of 15)

#	Topic	Question & Answer
1	State Quartile Ranking	<p>Q1: How were the states placed into quartiles of performance.</p> <p>A1: States were placed into quartiles based on four factors. First used was the “Stakeholder Rating” for the initial ranking. Second, Continuum reviewed the “Cont. Wait Time” results and determined if an adjustment in the initial ranking was merited. Third, Continuum reviewed the “Unneeded Loc.?”, “Poor Instructions”, and “Destroyed Marks” results and determined if an adjustment to the initial or secondary ranking was merited. Fourth, the “Continuum Rating” was reviewed and a determination was made if a final adjustment was appropriate.</p> <p>The four factors described above are presented in “Exhibit 3 - One Page Summary” along with 76 other characteristics. The other 76 characteristics are supplied for information purposes only and do not factor into the rating or ranking of a particular state.</p>
2	Infrastructure Protection Coalition Makeup	<p>Q2: Does “Infrastructure Protection Coalition” include any organizations that own infrastructure?</p> <p>A2: Yes. There are multiple members of the study sponsor organizations that own and/or operate utility systems including broadband, telecom, electric, natural gas, water and sewer infrastructure. In addition, they potentially performed their own locates as an owner/operator of utility system assets, or had a separate locate business or functions and they performed as a 3rd party locator. This situation did not exist frequently as part of the research process and when a single interview/survey contact employed by an excavator had enough experience to respond in two or three ways, Continuum did the following:</p> <ul style="list-style-type: none"> • 1st interview/survey completed with candidate designating their response as an excavator. • 2nd interview/survey completed with candidate designating their response as an asset owner/operator, internal locator, or 3rd party locator.

Post Meeting Q&A (2 of 15)

#	Topic	Question & Answer
3	Definition of Terms	<p>Q3: Can you define “unnecessary locates”? Just want to understand what it means in this context.</p> <p>A3: “Unnecessary locates” was defined specifically as two situations where the percentage calculated for both instances combined represents the percentage of time any given day/week applied to this activity:</p> <ol style="list-style-type: none"> 1. Where the locator is requested to locate assets on a single ticket or multiple tickets over a distance or number of sites that exceeds that which is likely to be excavated within the initial ticket life measured in days. 2. Where excavators call in more tickets than can be constructed on by their available crews within the required excavation start period, measured in days, as a way to try and minimize or eliminate construction crew downtime in the event that some of the tickets fail to be completed within the notification period.
4	Definition of Terms	<p>Q4a: Is the basis for waste to define what is poor instruction based on all tickets, or only tickets created by contractors?</p> <p>Q4b: Also curious on "poor instruction" examples?</p> <p>A4: “Poor instruction” was defined specifically as situations where the locator could not determine where to go to honor the ticket request or once arriving at or near the ticket location, they could not clearly determine where excavation was intended and they chose to contact the excavator or 811 center to obtain better instruction. There was no distinction made among who originated the ticket or which type of locator (3rd party or contract locators and internal locators) performed the locate as ticket originators of all types and locators of all types were included in both the interview and survey process. The percentage calculated represents the percentage of time any given day/week applied to this activity.</p>
5	Definition of Terms	<p>Q5: The excavator could be a homeowner?</p> <p>A5: No homeowners were interviewed or surveyed for this study. All of the excavators participating were traditional underground utility contractors, specialty utility contractors (HDD, ROW, etc.), heavy civil or earth moving contractors, road building or paving contractors, or asset owners/operators excavating on their own behalf.</p>

Post Meeting Q&A (3 of 15)

#	Topic	Question & Answer
6	Definition of Terms	<p>Q6a: What is "Continuum Rating". What does it reflect and how is it determined?</p> <p>Q6b: Still don't understand what the Continuum Rating is. Can you please elaborate a little more on what went into that rating?</p> <p>A6: Continuum rated every state on a 1-10 scale with a 10 representing superior performance and 1 representing inferior performance. The rating was placed on the same scale that all of the interview and survey participants used and it is designed to make a comparison of how Continuum rated the state's performance based upon the interviews, research, and analysis completed in each state and applying our own industry expectations and expertise versus how the stakeholders in combination rated the state.</p>

Post Meeting Q&A (4 of 15)

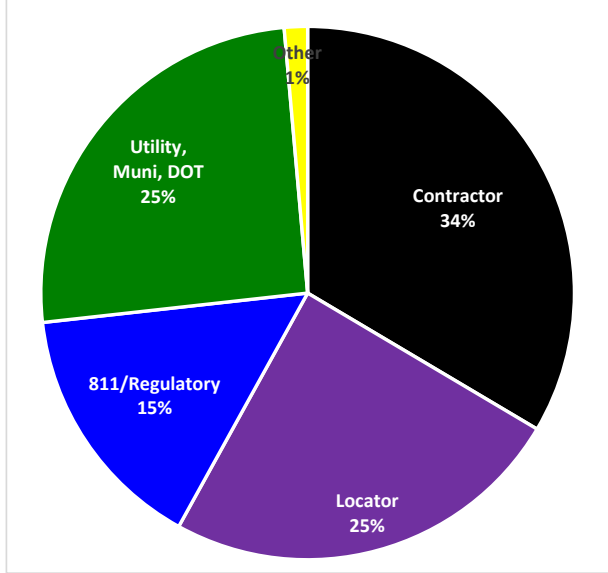
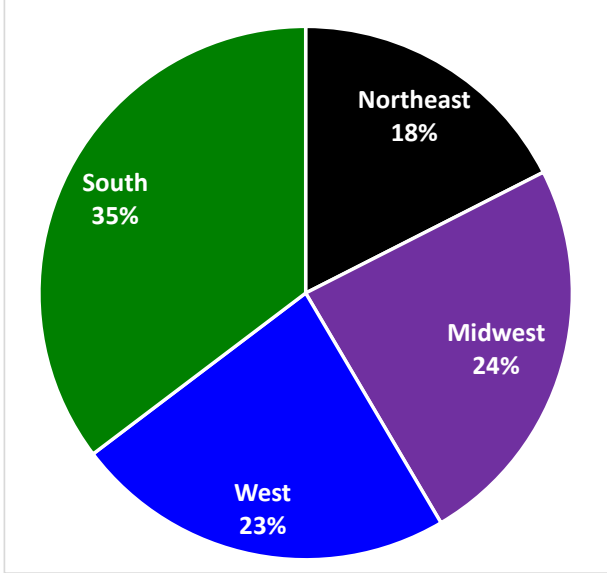
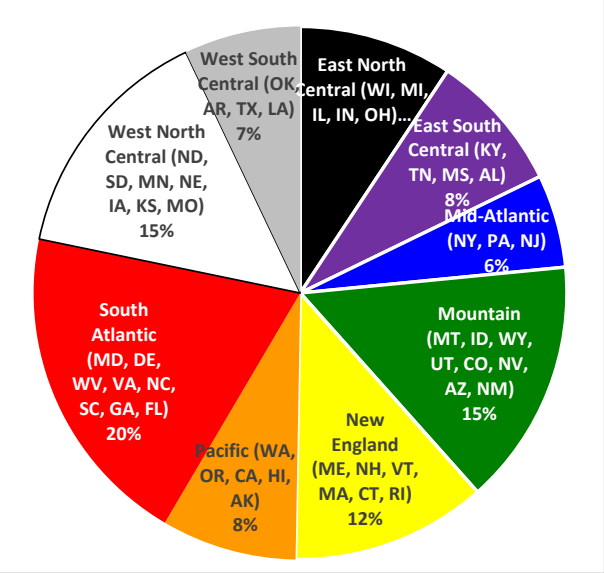
#	Topic	Question & Answer
7	Interview and Survey Participants	<p>Q7a: Is there data available regarding the number of survey respondents per state and their distribution across stakeholder groups?</p> <p>Q7b: OK sent feedback this week. We understand there is always room for improvements and continuous improvement is something most all states adopt. It's just frustrating when a report like this comes out and doesn't appear to be truly representative of what is needed based on the limited interviews, data collections and analysis that went into these reports.</p> <p>How many surveys were there per state, who were the surveys sent to, how were the recipients selected, and are the numbers statistically significant?</p> <p>Q7c: Is the breakdown of numbers surveyed and interviewed by state available?</p> <p>A7: There were between 5 and 20 interviews of 30 min. to 2+ hours in length conducted in every state with representatives from the 4 stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator.</p> <p>A7: There were between 50 and 200 individual survey question responses in every state with representatives from the 4 defined stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator.</p> <p>A7: Interview and survey participants were intentionally selected and not randomly selected. Because the candidates were not randomly selected, it is inappropriate to apply traditional tests of statistical significance. Potential candidates were identified based on 811 board participation, as members of the IPC associations, as Continuum known contacts, thru research into a specific state, and last in interviews where a participant was asked to identify additional interview candidates. In total, the pool of potential candidates was targeted in size to achieve enough candidates given an anticipated response rate of 10%. Every stakeholder type, from every state, participated in this effort. The results are robust, balanced, pervasive, and originate from individuals intimately familiar with how utility locate process operates in their state. Even though it is inappropriate to apply the traditional tests of statistical significance, mathematically they can be calculated and yield the following results:</p> <ul style="list-style-type: none"> • Full Dataset Survey Mean = 5.10; Median = 5.00; Standard Deviation = 2.58; Standard Error = 0.04; Where excavator and locator data skew slightly to the lower end of the rating scale with a longer tail toward this lower end while utility and 811/Regulator staff data skew slightly to the higher end of the rating scale with a longer tail toward the higher end.

Post Meeting Q&A (5 of 15)

#	Topic	Question & Answer
8	Interview and Survey Participants	<p>Q8: Also the Asset Owner can be all Stakeholder functions. They generate ~50% of our Locates.</p> <p>A8: When interviews or surveys were completed with a Utility/Asset Owner where their perspectives might be specific to their participation as asset owner, as a locator, or as an excavator, Continuum required them to designate their feedback into only one of the three categories. In some instances, the entire interview or survey process was repeated a 2nd time with the interview or survey candidate where they responded and designated their feedback into a second or third of the three categories. This did not happen frequently as part of the research process. As a specific example, when a single interview/survey contact employed by an asset owner had enough experience to respond in two or three ways, Continuum did the following:</p> <ul style="list-style-type: none"> • 1st interview/survey completed with candidate designating their response as an asset owner/operator. • 2nd interview/survey completed with candidate designating their response as an excavator or internal locator. <p>A8: This approach was also used with excavators who owned or operated utility system assets, potentially performed their own locates as an owner/operator of utility system assets, or had a separate locate business or function and they performed as a 3rd party locator. This did not happen frequently as part of the research process. As a specific example, when a single interview/survey contact employed by an excavator had enough experience to respond in two or three ways, Continuum did the following:</p> <ul style="list-style-type: none"> • 1st interview/survey completed with candidate designating their response as an excavator. • 2nd interview/survey completed with candidate designating their response as an asset owner/operator, internal locator, or 3rd party locator.
9	Interview and Survey Participants	<p>Q9a: So, the report is based on a survey where the facility owner was not surveyed?</p> <p>Q9b: So out of the 4000 surveys and 450 interviews, approximately how many were excavators?</p> <p>A9: Approximately 25% of the participants were facility owners. See slide 22 in these materials for percentage breakdown of participation by the 4 defined stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator. Every state had participation from each of the four groups in both surveys and interviews completed.</p>

Demographics

- ▶ 450 interviews completed, 4,000+ survey question responses
 - Geographically diverse among every state plus DC, City of Chicago, and City of New York
 - Stakeholder diversity with primary focus on achieving balanced feedback from 811/Regulatory, Utility/Asset Owner, Locator, and Excavator



Post Meeting Q&A (6 of 15)

#	Topic	Question & Answer
10	Interview and Survey Participants	<p>Q10a: Were 811 Board members participating in the survey identified in the study as from 811, their respective stakeholder group, or both?</p> <p>Q10b: I am assuming that 811 means a contact center was interviewed.</p> <p>Q10c: Can you at least identify for us in the 811 centers if it was an actual 811 employee or a regulator that was included for our state?</p> <p>A10: Any 811 Board member interviewed/surveyed was designated as one of the 4 defined stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator based on the current employer. If an individual was retired, they were allowed to chose one of the 4 defined stakeholder groups their perspectives were representing. In rare instances, an 811 Board member could speak to more than one stakeholder group and the entire interview or survey process was repeated a 2nd time with the interview or survey candidate where they responded and designated their feedback into a second category. As a specific example when a single interview/survey contact employed by an asset owner had enough experience to respond in two or three ways, Continuum did the following:</p> <ul style="list-style-type: none"> • 1st interview/survey completed with candidate designating their response as an asset owner/operator. • 2nd interview/survey completed with candidate designating their response as an excavator or internal locator. <p>A10: In nearly every instance, individuals classified as 811 were currently employed staff at the 811 center.</p> <p>A10: At least one 811 staff member was interviewed in every state.</p>
11	Interview and Survey Participants	<p>Q11: Were internal company locates included or only contract locating?</p> <p>A11: Third-party or contract locators and internal locators, who are generally employees of the asset owner/operator, are both included in the “Locator” category (See slide 22 in these materials for percentage breakdown of participation by the 4 defined stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator). A small number of private locators were also interviewed and included in this same category.</p>

Post Meeting Q&A (7 of 15)

#	Topic	Question & Answer
12	Interview and Survey Participants	<p>Q12: Why were the Designers/ Project Owners who are responsible to abide by the LAWS and develop, create, and pay for the projects not addressed to any real level?</p> <p>A12: Continuum does not clearly understand the question.</p> <ul style="list-style-type: none"> • Project owners (what Continuum refers to as “Utility/Asset Owner”) included traditional utilities (telecom, electric, and gas), municipalities (water & sewer primarily), and Departments of Transportation participated in all aspects of the study and account for 25% of the interviews and surveys completed with multiple asset owners of all types participating in every state. • Of the 13 recommendations, 1, 2, and 9, touch directly on “Utility/Asset Owner” process and practice in interacting with the 811 System and recommendations 3, 4, 6, and 11 touch indirectly.
13	Interview and Survey Participants	<p>Q13: Why is 811 grouped with Regulators?</p> <p>A13: For Continuum’s convenience.</p>
14	Clarifications	<p>Q14: 43 out of 400...if only 50-100 were conducted in another state, wouldn't that naturally generate less positives than VA?</p> <p>A14: This question refers to Exhibit 2 – 811 Stakeholder View on High & Low Performing State 811 Systems in the National Report and Slide 4 - State Ranking & Stakeholder Perspectives in these materials. This questions was offered in a blind, unprompted, and open ended fashion to avoid bias on the part of the interviewer. The interviewee was allowed to not respond, identify one state in either category (high performing or low performing), or identify as many states in either category as they saw fit. The only conclusions drawn is that 43 people feel Virginia is an example of a high performing state and no individuals placed Virginia into the low performing category demonstrating complete consistency in perspective. Looking across all of the responses, there is a high degree of consistency in the view on where every state ranks in terms of their high performing versus low performing status.</p>

Post Meeting Q&A (8 of 15)

#	Topic	Question & Answer
15	Clarifications	<p>Q15a: Contractors that do build hand expose and potholing into their cost structure ARE not following the laws established in most states and for sure in violation of Fed Regs...it is NOT lost time if they are performing safety related functions-potholing is one, what about shoring, step excavating for depth, wearing PPE, confined space...potholing is equal to these other OSHA regs and NOT considered lost time.</p> <p>Q15b: As much HDD as goes on how could anyone avoid pot holing regardless of the locate accuracy?</p> <p>Q15c: Is Mark suggesting that safe digging practices could or should be eliminated? I would argue that safe digging practices actually reduce damages and are a positive activity improving safety, rather than a calculated waste. Maybe I misinterpreted what he was saying...might want to consider using “defensive digging practices” instead of “safe digging practices” in that case...</p> <p>A15: “Safe Excavation” practices are not discouraged. Based on feedback during the session, IPC will begin using the term “Defensive Excavation” to represent one type of contractor wasted time and IPC’s use of this term “Safe Excavation” practices in the state reports will be replaced with the term “Defensive Excavation.” The use of “Defensive Excavation” describes a specific type of wasted time and <u>effort required from contractors due to a breakdown in the utility locate process.</u></p> <p>A15: As an example, after arriving at an excavation site and discovering that all of the locates have not taken place, the contractor will typically make an “emergency” locate request and wait the designated period of time. After waiting the required period of time with no response, in some instances the contractor can or will move forward with excavation using “Defensive Excavation” practices to try and locate or avoid damaging a facility. The <u>requirement</u> for these type of “Defensive Excavation” practices is the type of waste identified. The intention is to segregate this type of wasted time from an industry best practice of “Safe Excavation” used to protect assets from damage during normal excavation.</p> <p>A15: In the interview and survey process, the wasted time reported by contractors was specifically tied to “Defensive Excavation” practices (a type of <u>wasted time required by a breakdown in the utility locate process</u>) and not tied to the use of “Safe Excavation” practices used as a choice or best practice by excavators.</p>

Post Meeting Q&A (9 of 15)

#	Topic	Question & Answer
16	Waste Calculation	<p>Q16a: Describe how the waste amounts were calculated.</p> <p>Q16b: Were the subjective estimates levelized in any way or verified with actual data. We have run reports on locates over a distance and found that what we have heard complaints about is actually less than 1% of actual request data.</p> <p>Q16c: So this is based on a locators personal subjective "estimates", not qualitative damage data analysis?</p> <p>A16: IPC does not believe the term "subjective" is appropriate to describe how the estimates were made. The waste estimates were made by 3rd party and internal locators along with contractors of various types who are professionals performing locates or excavation daily and are intimately familiar with the locate or excavation process. They are making these estimates based upon their company data and personal experience. Continuum validated these estimates at the highest level based upon results Continuum has collected in the execution of time and motion studies to ensure the estimates fell within what Continuum has found to be a typical range (See Slide 33 - Wasted Time Contractor & Locator). The locator average waste percentage was multiplied by the annual state spending on 3rd party and internal locate activity to generate a dollar amount of waste. The contractor average waste percentage was multiplied by annual utility construction spending, reduced by 40%, to get to a figure representing the combination of construction labor and equipment cost for typical utility construction to generate a dollar amount of waste.</p> <p>IPC views the 811 Emergency study as a starting point for further investigation to build a more detailed understanding and more robust calculation of potential waste. It is appropriate to pursue and further validate these results with a more thorough state specific study.</p>
17	Waste Calculation	<p>Q17: How much waste is there in the system from having a duopoly among contract locators where the top two have 75-80% market share?</p> <p>A17: Its more like the top three control 75-80% and because of this concentration, it should prove easier to drive the waste out. Wasted time is still wasted time, whether it involves one entity or multiple entities.</p>

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#	Topic	Question & Answer
18	State Specific Data	<p>Q18a: Can we get that static information our specific state? If so, how?</p> <p>Q18b: I too would like to see the responses provided for AZ so that we can better understand the nuances of the report results for our state.</p> <p>Q18c: I would like to see survey info from my state to better respond to the specific concern. I don't need specific responders just by stakeholder group and info responded.</p> <p>A18: See Exhibit 3 - One Page Summary in each state report for state specific data. It includes a breakdown of the data into stakeholder categories including the following:</p> <ul style="list-style-type: none"> • “Continuum Rating” – Rated Very Satisfied (>7); Satisfied (7 to 5); Dissatisfied (5 to 2.5); Very Dissatisfied (<2.5). • “Stakeholder Rating” - Rated Very Satisfied (>7); Satisfied (7 to 5); Dissatisfied (5 to 2.5); Very Dissatisfied (<2.5). • “Contractors Only” - Rated Very Satisfied (>7); Satisfied (7 to 5); Dissatisfied (5 to 2.5); Very Dissatisfied (<2.5). • “Locator Only” – Rated Very Satisfied (>7); Satisfied (7 to 5); Dissatisfied (5 to 2.5); Very Dissatisfied (<2.5) • “Utility Only” - Rated Very Satisfied (>7); Satisfied (7 to 5); Dissatisfied (5 to 2.5); Very Dissatisfied (<2.5). <p>While not included in Exhibit 3 - One Page Summary in each state report due to space constraints, an “811/Regulator Only” result that is rated on the same scale described above can be provided.</p> <p>IPC views the study as a starting point for further investigation to build a more detailed understanding in a specific state from which action might take place among interested stakeholders at some point in the future. We anticipate that many states will want to perform more specific investigation or research into topics introduced by the 811 Emergency study in order to make a deeper dives into the issues outlined in a specific state.</p>

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#	Topic	Question & Answer
19	Recommendation Cost Calculation	<p>Q19a: How was the \$1.2 billion calculated? What initiatives exactly are included in that \$1.2 billion and how do each of those initiatives solve/address the 6 opportunities that total \$40.65 billion?</p> <p>Q19b: What is the evidence that those recommendations address the opportunities and the \$1.2 billion in initiatives address the recommendations?</p> <p>Q19c: Most of the questions people here have are about the opportunities by state and the size of those opportunities. Those are very legitimate questions. I have several questions above about the links between the 13 recommendations to address the opportunities, and the \$1.2 billion in initiatives to implement/address the 13 recommendations. The following connections are not clear to me from the report:</p> <ul style="list-style-type: none"> • 13 recommendations -> waste reduction opportunities • \$1.2 billion in initiatives -> 13 recommendations • \$1.2 billion in initiatives -> waste reduction opportunities <p>Can we know for each state which one of those was allocated for that state?</p> <p>A19: The \$1.2 B in recommendation cost is calculated from the ground up - adding the implementation cost of proposed recommendations in each state. (e.g. “Recommendation 1-No Exemptions” anticipates a state law update, lobbying costs, draft wording cost, legislative work cost, and additional costs for exempt asset owners to participate in the system.) Each recommendation includes a set of descriptions and anticipated costs that were not incorporated into the reports due to space constraints. Continuum estimated a standard implementation cost for each recommendation for each state regardless of the size or complexity of the state.</p> <p>A19: The \$40 B in recommendation impact is defined by a specific initiative(s) designed to remove or facilitate removal of waste from the 811 system. The waste reduction is calculated from the ground up adding together the potential savings in each state. Continuum made a state specific impact estimate for each recommendation given the waste identified, the nature of this waste, etc.. Each recommendation applied includes a set of descriptions and anticipated impacts that were not incorporated into the reports due to space constraints.</p> <p>A19: Exhibit 4 – State Utility Locate System Cost Impacts in each State specific report details the summary total recommendation cost and impact.</p>

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#	Topic	Question & Answer
20	Recommendation Cost Calculation	<p>Q20a: The key punchline in the report is the \$1.2 billion implementation cost and the 33x ROI on that \$1.2 billion. If that were true, it would be miraculous.</p> <p>A20: Prepare for a miracle. Keep in mind that removing waste from a system creates 3x the impact of simply driving out cost which provides 1x the impact. As an example, removing the wasted time creates a 1x benefit; the elimination of the opportunity cost of this formerly wasted time creates a 2x benefit; and the application of the newly freed up wasted time that can now be applied to productive activity creates a 3x benefit.</p>
21	Correlation Analysis	<p>Q21: If correlation not in the 80-90% range, what was the R-Square and p-value?</p> <p>A21: Continuum makes no claims regarding correlation or causation in the National or State specific reports. In this type of analysis, the likelihood that a single variable or multiple variables in combination would approach explaining 80-90% of the variance is very low. As a general rule, in complicated, multi-variate processes like the generation of waste in the 811 System, finding a single variable that generates 30-50% correlation would be more likely. Continuum has proposed to the IPC the development of a series of addendums to the National and State specific reports, including one that utilizes linear or other regression techniques to explore correlation and causation of waste imbedded in the system at which time tests like R-Square among others would be conducted.</p>
22	Raw Data Access	<p>Q22a: Is the interview data considered confidential? Can the results be shared even if participant data is redacted? Perhaps with simple summary data regarding company size, approximate activity levels, etc.? The question responses would be helpful to each state- can the name or org be redacted? Then get the interviews?</p> <p>Q22b: Can we see who was tagged as the respondent for the 811 centers for those states you pulled that data for?</p> <p>A22: The interviews and surveys were all conducted with an expectation of anonymity. IPC will not share the raw data, names, other identifying information or confirm or deny a particular person / organization's participation in the effort.</p>

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#	Topic	Question & Answer
23	Survey & Interview Template Examples	<p>Q23a: The blank interview template will be very helpful. So would the survey(s). Q23b: Can the blank interview template be shared? Q23c: Can those surveys be shared with the states? A23: See SurveyExample_CGA.pdf for example survey template. A23: See UtilityLocateInterviewExample_CGA.pdf for example interview template.</p>
24	Next Steps	<p>Q24: If we wanted to prioritize acting on the waste, there might be sort of a chicken & egg situation, but it seems like wasted requests for marks might rise to the top. A24: The biggest impact will originate from removing contractor related wait time and waste because construction related spending and waste account for the largest portion of the total waste. Because the contractor related waste is multi-dimensional in its causation, it will be harder to remove. Removing locator related wasted time is more discrete where narrow focused actions can have a direct line of site impact on the three types of locator waste (“Unneeded Loc.?”, “Poor Instruction”, and “Destroyed Marks”) and has a secondary benefit of potentially reducing contractors wait time. A baseline of state specific locator and contractor waste will have to be developed so that improvement potential and techniques can be effectively measured. We agree that working on “Unneeded Loc.?” is an appropriate starting place.</p>
25	Next Steps	<p>Q25: What is the Infrastructure Protection Coalition going to do now with the issuance of this report? A25: Continuum is not a member of the Infrastructure Protection Coalition (IPC) and the current scope of our services will be complete with the publishing of any necessary report updates. Continuum cannot address this question. A25: IPC views the study as a starting point for further investigation to build a more detailed understanding in a specific state from which action might take place among interested stakeholders. We anticipate that many states will want to perform more specific investigation or research into topics introduced by the 811 Emergency study in order to make a deeper dives into the issues outlined in a specific state.</p>

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#	Topic	Question & Answer
26	Next Steps	<p>Q26: As this has been shared so widely, will the option to provide updates/corrections be shared as widely? and is there a deadline for this info to be supplied and when the updated presentation will be provided?</p> <p>A26: The current plan is to collect feedback through 12/31/21 and then update any state reports necessary and republish on approximately 1/3/22. Each republished report will be marked on the cover “Updated 1/1/22” to distinguish it from an earlier version. [Subsequently and at the request of NARUC and NAPSRS participants, feedback will be collected through 2/28/22 and republishing of any updated reports will occur near 3/1/22.]</p>
27	Next Steps	<p>Q27: Many recommendations are based on bad data received through the study indicating a need for something that already exists. Will there be a process to make the study more accurate in that regard?</p> <p>A27: The assumption that the recommendations are based on “bad data” is flawed. The recommendations were formed based on feedback obtained during the 450 interviews conducted for 30 min. to 2+ hours in length in every state with representatives from the 4 defined stakeholder groups - 811/Regulatory, Utility/Asset Owner, Locator, and Excavator who are professionals and highly experienced in the utility locate process. In addition, Continuum applied our over 100 years of internal staff combined experience paired with 200 years of external subcontractor combined experience in the utility locate and utility construction process.</p> <p>A27: While it is possible that a specific recommendation was made in error and should be removed for a specific state, it is much more likely that IPC is proposing a refinement in the existing wording of the dig law, a refinement to the existing process and practice, or some other modification of what currently exists or is absent from the state. IPC used a standard wording for all recommendations made in any state, with very few state specific exceptions, yet for space constraint reasons did not provide a rationale for why a specific recommendation was made in a specific state. It was anticipated by IPC, that where desired, a more detailed discussion would take with interested parties in the state where nuances and additional detail could be provided and support effective discussion and determination of if or how to adopt a recommendation.</p> <p>A27: IPC will accept any feedback provided from any source, work on the the feedback on our end, alert the appropriate party to what our plan is to address the submitted items, and then set up a call with the appropriate party to review any items, about which IPC or an appropriate party have questions.</p>

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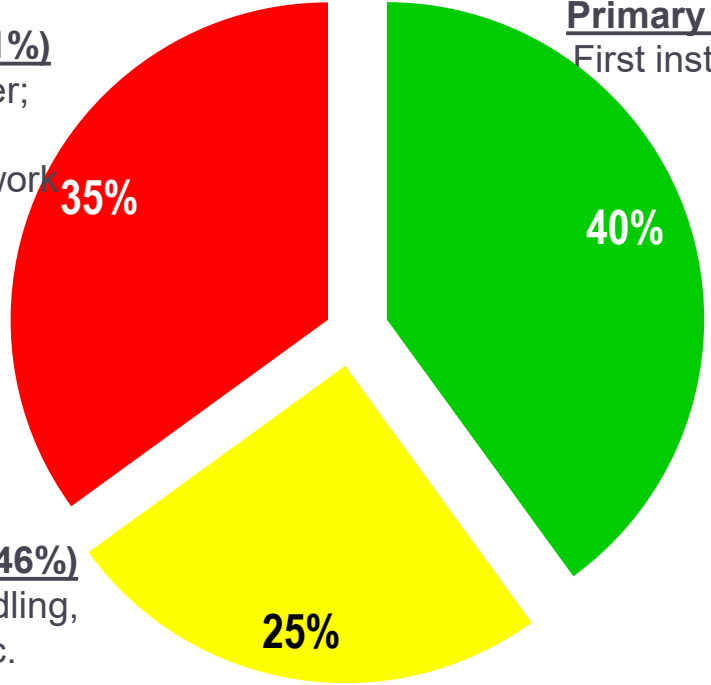
#	Topic	Question & Answer
28	Next Steps	<p>Q28: I think you need to understand that the people here are very well aware of the mistakes in the report and know what needs to be corrected. However, the big problem lies with all of the people outside of this group who read the report and are not aware of just how bad some of the basic data was. So the corrections need to be made and shared and marketed as widely as the original report.</p> <p>A28: The assumption that the “basic data” is “bad” is a flawed assumption. States were placed into quartiles based on four factors – 1) “Stakeholder Rating”; 2) “Cont. Wait Time”; 3) “Unneeded Loc.?”; “Poor Instructions”, and “Destroyed Marks”; and “Continuum Rating”. The four factors described are presented in “Exhibit 3 - One Page Summary” along with 76 other characteristics. The other 76 characteristics are supplied for information purposes only and do not factor into the rating or ranking of a particular state.</p> <p>A28: The waste estimates were made by 3rd party and internal locators along with contractors of various types who are professionals performing locates or excavation daily and are intimately familiar with the locate or excavation process. They are making these estimates based upon their company data and personal experience. Continuum validated these estimates at the highest level based upon results Continuum has collected in the execution of time and motion studies to ensure the estimates fell within what Continuum has found to be a typical range (See Slide 33 - Wasted Time Contractor & Locator). In addition, Continuum applied our over 100 years of internal staff combined experience paired with 200 years of external subcontractor combined experience in the utility locate and utility construction process.</p> <p>A28: IPC will accept any feedback provided from any source, work on the feedback on our end, alert the appropriate party to what our plan is to address the submitted items, and then set up a call with the appropriate party to review any items, about which IPC or an appropriate party have questions.</p> <p>IPC’s hope is that the readers will accept this robust, balanced, pervasive state feedback that originates from individuals intimately familiar with how the utility locate process operates in their state and receive it in the vein in which it is offered...as a tool to potentially liberate \$40 billion of invisible waste that if driven out can reduce the cost to rate payers, to system stakeholders, and improve public safety.</p>

Wasted Time Contractor & Locator

- ▶ Contractor wasted time associated with the utility locate process is incorporated into “Recoverable Lost Time” category contributing to the 35% average
- ▶ Locator “Recoverable Lost Time” is approximately 50% on average

Recoverable Lost Time 35% (Range 12-61%)
Wasted time moving materials or manpower;
Missing material, tools, equipment, or
information; Wait time; Rework on installed work
for any reason.

Primary Time 40% (Range 13-65%)
First installation units (wrench time).



Secondary Time 25% (Range 11-46%)
Planning, scheduling, material handling,
lay-out, set-up, mobilization, etc.

Source: Continuum proprietary analysis of time and motion studies of contractor field crews.

Thank You

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Mark Bridgers

Mark founded and leads a Utility Vertical Market team team at Continuum Capital. He works with gas/electric utilities, power generators, pipeline companies, and energy companies. As a recognized expert in capital construction and operational challenges, Mark was recently honored with membership in the Society of Gas Operators (SOGO) and the Gild of Ancient Suppliers.

Mark helps firms prepare for and successfully navigate “strategic transitions.” His passion is helping organizations achieve breakthrough innovations through collaborative or integrated relationships. He is the architect of an approach for integrated service provider management referred to as the “Extended Enterprise” among construction industry participants.

Mark is an avid educator, trainer, and writer with more than 20 years of industry expertise including financial performance analysis; development and implementation of tools to reduce construction cost, life-cycle cost, and operational friction; restructuring of processes and procedures - often times using LEAN Construction techniques; and leader development.. He is a recognized expert in capital construction and operational challenges . Mark is also author of over 150 articles and research papers published internationally in industry journals, including ENR, PE – The Magazine for Professional Engineers, Pipeline & Gas Journal, Utility Contractor (NUCA), Underground Contractor, Electric Energy (RMEL) and Electric Perspectives (EEI).

Mark holds a master’s degree in business administration from the University of Virginia’s Darden school of Business and a bachelor’s degree in financial management from Clemson University. In addition, he earned the designation of Chartered Property and Casualty Underwriter (CPCU) and Associate in Reinsurance (ARe).



Loren Brace

Loren Brace is a consultant to the overhead and underground utility construction industry. He is an accomplished executive with deep field experience and primarily works with gas & electric utilities, pipeline companies, and energy firms on the development of strategies and operational processes that can transform an organization and achieve superior performance.

Loren's deep expertise includes senior management or leadership roles with three of the largest pipeline and utility contractors operating the Midwest and Southeast. He learned the business, hands-on, starting in the trench and has extensive experience in the field driving productivity, safety, and quality performance improvement. In addition to practical construction experience, his responsibilities include distribution and transmission planning and construction, asset management, strategic sourcing, resource management, behavioral safety strategies, and employee development. Typical engagements include evaluation of workflow processes, contract resource management strategies, equipment utilization assessments, contractor performance programs, productivity improvement analysis, and Safety/Quality improvement initiatives.

Loren is a leader and active participant in industry associations including the Distribution Contractors Association (DCA), as a committee chair; the Midwest Energy Association (MEA), as a committee member; and the National Utility Contractors Association (NUCA), as a Director-at-Large; among others. He is an advocate of lifelong learning and recently completed the certificate program in Supervisory Management at the University of Wisconsin Oshkosh. He currently resides in Kansas City, MO.



About Continuum

Continuum Capital is a boutique management consulting, training, investment banking, and capital services firm providing services to the worldwide construction industry. We provide services in the areas of strategic market information, acquisition integration, ownership transition, private equity financing, project delivery improvement, management and field-level training, strategic planning, strategic sourcing, and productivity improvement.

<i>Mission Statement</i>	Transform capital asset construction worldwide.
<i>Founded</i>	2011
<i>Office Locations</i>	Raleigh, NC; Birmingham, AL; Denver, CO; Dallas, TX; Chicago, IL; Baltimore, MD
<i>Number of Employees</i>	9
<i>Geographic Market</i>	United States, Canada, Latin America, Europe, and Pacific Rim
<i>Continuum Capital's Clients</i>	Contractors; engineers; architects; government agencies; utility companies; manufacturers and distributors of construction materials and construction equipment
<i>Consulting Clients</i>	15 per year (90% of whom are repeat customers)
<i>International Speaking Locations</i>	Brazil, Canada, France, Mexico, South Korea, United Arab Emirates
<i>Professional Lecture & Speaking Knowledge & Database Access</i>	20 per year
<i>Knowledge & Database Access</i>	Proprietary database tools for benefit of clients: <ul style="list-style-type: none"> a) Utility construction index from 2009 to present; b) Utility construction field productivity improvement techniques from 1700 surveys; c) Utility contractor financial performance comparison of 50+ publicly traded and privately held firms; d) National and regional utility construction spending history and forecast e) Gas utility "Best Practice" database and knowledge defining superior performance from 2000 to present d) 35,000 contact database to support acquisition, research, and industry knowledge
<i>Corporate Web Site</i>	www.ContinuumCapital.net
<i>Energy & Utility Team Leader</i>	Mark Bridgers – President & Founder Continuum Capital; Director Utility Vertical Market

About Continuum

Founded in 2011, Continuum Capital provides boutique management consulting, capital services, and training, to the energy, utility, pipeline, and industrial markets supporting the successful and efficient planning, design, construction, and operations of capital asset.

Continuum utilizes a proprietary “SMART Advisory” methodology to deliver innovative and customized solutions to energy, utility, or pipeline owners/operators who want to transform their capital asset construction processes. Service providers to these firms, including underground and overhead contractors and engineers, are integrated into the transformation process, frequently forming what Continuum refers to as an “Extended Enterprise.”

Continuum’s experienced consultants can assist your business with Capital Construction/O&M Unit Effectiveness, Program Management Office Transformation, Risk Management/Mitigation for Capital Asset Construction, Project Management/Controls Installation, Process Analysis & Improvement, Management of RFI / RFQ / RFP / Procurement, Extended Enterprise/Alliance Formation, and Field Productivity Assessment & Improvement.

Additional and specialized services include, M&A or Due Diligence Support, Market Strategy, Market Research, Cost Analysis & Savings, Cost to Complete Analysis, Cost to Convert to Best Purpose, and Cost to Restore Asset.

Let Continuum transform your business!

- S** – Strategic Relations
- M** – Measureable Objectives
- A** – Aligned Sourcing
- R** – Risk Controlled
- T** – Technology Enabled

