California Underground Safety Board

September 13, 2022

Agenda Item No. 7 (Information Item) - Staff Report

Planning Ticket Development Update

PRESENTERS

Veronica Bravo, Policy Analyst
Tony Marino, Executive Officer

SUMMARY

Following discusions on ticket volatility and the information quality excavators rely upon in potholing, the Board began to explore the possibility of creating a ticket for planning and design. Staff issued surveys for both operators and designers to gather information on what utility information designers need in the design phase of projects and the challenges designers and operators face in the design process. Responses generated from the surveys found that designers would like to see a standardized process for requesting utility information and receive detailed maps from operators. Other states have both design and "large/complex" ticket types, which may inform a California solution. Staff recommends that the Board Planning and Design Committee better define "design" and determine what information a designer needs at its various stages.

STRATEGIC PLAN

2021 Annual Plan Objective: Improve Excavation and Location Practice Safety
Strategic Activity: Looking Ahead: Locator Requirements and Best Practices

BACKGROUND

Government Code Section 4216.18 requires the Board to develop standards relevant to safety practices in excavating around utilities and procedures and guidance in encouraging those practices. State law does not currently require call centers to offer a design ticket option.

During the Board's May 2021 meeting[1] and later, [2] the Board discussed whether a new type of ticket targeted at planning and design could alleviate delays in the locate and mark process.

[1] May 11, 2021, Agenda Item No. 9 USAN Issues in Locate and Mark
[2] July 13, 2021, Agenda Item No. 8, Discussion on Locate and Mark Issues

During the July 2021 Board meeting, the Board created a Ticket Committee of Members Bianchini and Charland to examine, among other things, locator workload. Simulations demonstrated that even a relatively small percentage of excavators requesting a start date later than the legal minimum can dramatically reduce workload volatility at a system-wide level.[3]Board also discussed in July 2021 whether it was reasonable to think that a planning and design ticket process would both improve locate response times and improve safety, and, if so, what would such a process look like. The Board discussed possible solutions for addressing planning and design ticket needs, including operators sharing as-builts and maps with designers and communication between designers and operators during the design phase of construction.

During the Board meeting in November 2021, staff compared California's 811 ticket process to Colorado's 811 engineer (or planning) ticket.[4] While Colorado 811 requires the designer to share design information during the design phase of building projects with operators via the call centers, California has no similar requirements. While not mandated to, both call centers have created an option for designers to look up utility contacts for design purposes through their respective websites. In California, designers must contact the operators themselves to request underground utility information.

Colorado's subsurface utility engineering (or SUE) ticket requirement [5] mandates communication between designer and operator well before the beginning of excavation. The requirement also implements several of the concepts later highlighted within the Common Ground Alliance (CGA) Next Practices Report, including having accurate information of underground utilities to assist in efficiently locating and marking underground utilities to prevent locate and mark delays and prevent damages to underground utilities. The Colorado engineering ticket also implements the CGA recommendation of a flexible ticketing process to help locators manage workloads and accommodate influxes of tickets.[6] Board Members agreed to consider the benefits of creating a new ticket type.

The Board held a virtual Planning Ticket Workshop in February led by Member Johns and released surveys for both designers and operators on the Board website. Though discussion and survey participation was limited, feedback found that building designers need information in the design phase and that having precise location of utilities early helps them identify challenges to the excavation before construction begins. Designers identified challenges communicating with operators and accessing precise utility location information. Operators

[3] Board Meeting November 9, 2021, Agenda Item #7
[4] November 9, 2021, Agenda Item No. 6, Comparing & Contrasting CO
[5] Colorado 811 Statutes §103
[6] Common Ground Alliance NEXT Practices Report February 2021

discussed not having resources to process design requests and not having updated records of their facilities.

DISCUSSION

To consider the benefits of creating a design ticket option for building designers, Board staff seeks to understand:

a) How designers develop plans to avoid contact with underground utilities during excavation. Specifically, we want to know what type of information they need and when they need it
b) How operators respond to requests from designers, and
c) What information sharing and communication challenges currently exist

Because the previous surveys only garnered 1 response, new surveys were released on July 25 and ran for two weeks. Staff create more user-friendly multiple-choice surveys that would take less time for respondents to complete. Staff also created an outreach plan to drive more participation from designers and operators which included reaching out to local agencies and an engineering company trade association. The new surveys garnered 12 responses from designers and 2 from operators.

Questions for designers asked what type of information they needed and when they needed information to complete their work, as well as challenges they might be experiencing when requesting utility information.

Questions for operators asked how they process design requests and what challenges they have in processing those requests. As only two operators responded, this report does not analyze those responses.

Survey Responses from Designers

Th survey (**Attachment 1**) highlighted the following challenges for designers:

- 4 out of 12 reported “usually” waiting between 2 weeks and a month for a response to their information requests
- 6 out of 12 “agree” or “strongly agree” that information quality is a challenge
- 8 out of 12 “agree” or “strongly agree” that finding appropriate contact information is a challenge
- 7 out of 12 “agree” or “strongly agree” that the costs to receive information is a challenge

Though designers agreed that having a standardized process to request utility information for their designs and an online platform for data sharing and communication would enhance their

ability to plan and design projects involving excavation, 9 out of 12 strongly agreed that having accurate and detailed utility maps or information would be the most helpful.

Yet not all designers believe that maps are sufficient for accurate design work. One commented:

> "Mapping standards vary from utility to utility and the accuracy of the maps have changed and are continuing to change as new technology becomes available. Having the facilities marked in the field is the most accurate method of determining potential conflicts during the design phase of a project."[7]

Board staff suggest reviewing all the different types of information available to designers, what type of information they each provide, and how they are helpful at different stages of the design process prior to creating a design ticket.

Other States- Design Tickets

In addition to *CGA Best Practices* finding that having different ticket options help reduce locator workload, CGA also outlines what the pre-design process should look like to reduce hazards and minimize costs by helping to identify unexpected conflicts.[8] CGA states the design process in 811 should have the following phases:

- Gathering information: the designer makes reasonable efforts to obtain all the information about the utilities in the planned area of excavation and identifies the owners of the utilities
- Identifying utility locations: the designer receives feedback from the operator regarding the utility information they have gathered- both in the gathering phase and final design phase
- Utility coordination: project owners and operators continue to communicate throughout the project. Coordination and exchange of information takes place with utilities, designers, local agencies and contractors.

Staff researched other states [9] with design tickets to identify what information and communication are required to be exchanged between designers and operators at different stages. Using the three phases that CGA identifies above, these states incorporate design as follows:

[7] Planning and Design -Survey II Responses from Designers
[8] Common Ground Alliance Best-Practices 18.0, June 2021, pp. 7-10
[9] Pennsylvania, Colorado, Indiana, Kentucky, Georgia, Oregon, Michigan, Virginia, Wisconsin

1. Gathering Information Stage: Requesting Information
    - Few states require the use of design tickets, while other states offer a design ticket option as voluntary or do not require its use.
    - Some states such as Indiana, Pennsylvania, Kentucky, and Michigan offer two types of design tickets: preliminary and final design. Preliminary design tickets are used early in the pre-bidding phase of design when the scope of the project is being determined, while final design tickets are more specific and formal. Pennsylvania designers can request information of utilities but must state on their request that it is a predesign notice, which will allow them to request information more than 90 days before the final design is completed.[10]
    - All states require operators to respond to design ticket requests, whether the design ticket is required or voluntary. Once the design request is made, the operator is required to respond and has requirements for how to respond.
    - Most states provide operators 10 days to respond to design ticket requests, though Virginia gives operators 15 days to respond.

It is not clear why some states require the use of a design ticket while others do not.

A regular locate request requires an operator respond to a ticket within 2 days.[11] A design ticket provides the operator more flexibility to complete the request and can possibly help manage locator workload.[12] All states in this report provide locate flexibility by allowing design tickets to be completed within a longer timeframe, though it is not clear why 10 days was the timeframe selected for design tickets.

The design process has several different phases and requires the coordination of several professionals, including project owner, architect designer or engineer, and contractor, as well as local agencies. The first phase or pre-design phase is a pre-bidding phase for designers where the focus is to gather as much information as possible to determine the scope of the project.[13] Though we do not have any information on the benefits of pre-design ticket options, a pre-design ticket option for project owners could accommodate the different stages of design to allow designers to identify buried utilities earlier in the design process and avoid potential damage.

It is also not clear if designers need different types/levels of accuracy at different stages of the design process. When creating requirements for predesign and design ticket options, consideration should be given to what designers need at each stage of design, and what type

[10] Pennsylvania 811, Predesign, Users-Guide,2021, p.5-6
[11] Government Code § 4216.2(b)
[12] CGA NEXT Practices Report, February 2021
[13] WC Studio Architects, The Phases of Designing & Building a Project, Journal, Cady Chintis, July 2019

of information should be exchanged between designer and operator at the predesign phase and final design phase.

Only 4 of the 9 states standardized the process for what type of information designers should provide to operators. All the information types—which ranged from contact information to project information—assist the operators in efficiently processing the design requests. It is not clear why information request requirements were not standardized in other states.

Developing a standardized design ticket process can provide an opportunity to promote consistency and clarity in the design process. The Board will have to think about how it wants to standardize the design ticket, specifically what designers must submit to operators to process the requests, what the operators will have to provide to designers, and when and how information will be exchanged.

2. Identifying Utilities Stage: Operators processing information
    - Not all states require maps, but the surveyed states do require different types of utility information be provided to the designer. (See table below for what operators in different states provide)
    - Only two states—Colorado and Pennsylvania—require SUE with ASCE-38 standard levels of accuracy.[14] In Pennsylvania designers must use ASCE Standards for preliminary and final design notices.[15]

While the surveyed states did not require designers to use a design ticket, all states require operators to respond to design tickets. Types of information an operator is required to provide vary from state to state. Though all states require a combination of different types of information to assist a designer, it is not clear what information would provide the most useful utility location information to a designer. Michigan requires the operator to locate and mark the utilities if information is not available,[16] while Indiana and Kentucky require both a description of the utilities and temporary markers to identify utilities. It is also not clear, however, whether all maps provided by operators are consistent in quality and accuracy and contain the same type of information, or if map information and quality range from operator to operator.

3. Utility Coordination Stage:
    - Most states require meetings for large and/or complex project tickets, but only Oregon and Colorado require meetings for design tickets (See: *Large Project/Complex Tickets* section). Colorado's one-call center has a separate meeting ticket but warns users that

[14] American Society of Civil Engineers, Quality Levels Defined, ASCE-38
[15] Pennsylvania 811 Excavation/Users Guide, p.1
[16] Michigan 811 MISS DIG Law 460.726a(3)

not all operators offer the option to meet.[17] Indiana and Kentucky 811 one-call centers encourage meetings between operators and designers and facilitate meetings by offering "Joint Meeting Sheets," but warn that it is not required.[18]

- Only Pennsylvania offers an online platform via their call center where operators and designers can coordinate exchange of information. Pennsylvania's purpose for creating an online format is to help project owners and designers to coordinate and communicate throughout the project.[19]

It is not clear why most states do not require meetings between operators and designers for a design ticket, nor is it clear if designers need meetings for this type of ticket. In California, meetings between an excavator and operator are only required for excavation work within ten feet of a high priority installation.[20]

Large/Complex Project Tickets in Design

According to CGA, "a large/complex project is a single project or a series of repetitive, small, related-scope, short-term projects that impact facilities over a long period of time or over a large area."[21] According to CGA Best practices, large projects have a unique set of challenges that cannot be addressed through use of regular one call practices but can be addressed by having the following processes:

- Method for identifying such projects
- Preplanning and design coordination
- Increased one call center involvement
- A formalized communication process among all affected stakeholders
- Project-specific marking agreements that address variance scenarios
- Regularly scheduled meetings of, and on-going communication among, all involved stakeholders
- Positive response

Except for Colorado and Indiana, all states that have a design ticket option also have and require a large/complex/special project ticket to differentiate from a project that will take longer, and/or is larger in size and/or will need coordination from several professionals. Colorado is currently reviewing the potential creation of a large project ticket. Most states with the large/complex ticket option require meetings to help facilitate communication and coordination of locate requests throughout the building projects. California's Dig Safe Law does not have a large ticket option.

---

[17] CO 811 Meeting Tickets, Excavator Handbook, p. 8
[18] Indiana/Kentucky 811, Joint Meet Sheet
[19] Pennsylvania 811 Excavation Guide, Coordinate PA Online for Design, p. 3
[20] Government Code § 4216.2(c)
[21] CGA Best Practice 2-16, p.15

A project that needs design might also need additional coordination and communication. Conversely, some large projects do not need design nor meetings but might only need coordination, as might be the case in extensive utility pole inspection work.[22] A large/complex ticket can encompass different types of scenarios that would be difficult to be serviced under a regular ticket. Though it is not clear how design and large projects tickets would interact and when, it may make sense to create both types of tickets because they both can provide flexible ticket options, provide designers/project owners with information, and can possibly alleviate locator workload.

Other Considerations

- We provide information BUT…: In some states, such as Indiana and Kentucky, operators have the right to reject a design request *"based upon security considerations or if producing the information will place the operator at a competitive disadvantage."*[23] Virginia law states operators are not liable for giving inaccurate or incorrect information. [24]
- Fees: Even though some state one-call centers do not charge a fee for use of a design ticket, an operator could charge a designer fee for utility information. It is not clear what the fee amount is that operators charge designers. The Board would have to consider if it is reasonable for operators to charge a fee, and if so, how much. It is also not clear what fees designers are willing to pay in exchange for information they need.

[22] Underground Safety Board Meeting November 9, 2021, Agenda Item No. 7, Measuring Ticket Volatility and Estimating Locator Workload

[23] Kentucky 811 Statutes, Operator Right to Refuse Design, KRS 367.4909 (9); Indiana 811 Statutes, Operator Right to Refuse Design, IC 8-1-26-16.5(g)

[24] Virginia 811 § 56-265.17:3, Procedures for operators in response to a designer notice

Table: Design Ticket Information for Different States

State	Fee	Have a Design Ticket	Require use of Design Ticket	Requires Meeting	Require Operator to Provide Maps or Utility Records	Require Levels of Accuracy	Required Days to Locate
PA	Free but SUE fees	Yes	Yes	Only Complex Projects	Description/ Mark	Yes	10 days
OR	Unknown	Yes	No	Yes	Maps/ Records	No	10 Days
IN	Free	Yes	No	No- but can request- provide meeting sheet	Maps/ temporary markers on ground/ inspection of records/ description of utilities	No	10 days
GA	Free, but not all utilities provide info free of charge	Yes	No	Not for design- only large projects	Drawings/ Records/ Inspection of Records/ Description of utilities	No	10 days
VA	Free	Yes	No	Yes, esp. for govt projects	Can request field locates, maps, surveys, installation records or other means	No	15 days
WI	No	Yes	Yes	Only Large Projects	Mark on ground -but can request records as well.	No	10 days

KY	Free	Yes	No	No- but can request- provide meeting sheet	Temporary markers on ground/ description of utilities/ inspection or records	No	10 days
CO	Some operators may charge for design service. SUE fees paid by project owner	Yes	Yes	Yes- through separate Meeting Request Ticket- but not all operators offer option.	General Information for Design- not including depth. Also Mark on ground	For SUE only-but does not include depth	10 days
MI	Operators can charge fee for design	Yes	Yes	No	Maps/ Drawings-if operator does not have records, must mark utility	No	10 days
CA	N/A	No	N/A	N/A	N/A	N/A	N/A

RECOMMENDATION

Staff recommends the Board direct the Planning and Design Committee, composed of Members Johns and Johnson, to research and clearly define "design" and the components of the design process, and what types of information designers need at different stages of the design process. Staff also recommends the Board direct the Committee and staff to explore the relationship between large projects and design. The Board will need to decide what requirements to create for the designer and the operator. Staff recommends the Board direct the Committee and staff to confer with USA North 811 and DigAlert on what might be an effective process to facilitate the exchange of design information.

ATTACHMENTS

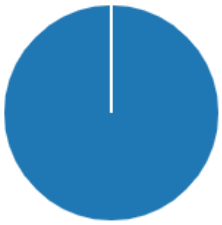
1. Designer Survey Responses
2. Planning and Design Resources of Other States

ATTACHMENT 1: DESIGNER SURVEY RESULTS

1. Does your organization plan, engineer, or design projects involving excavation?

More Details

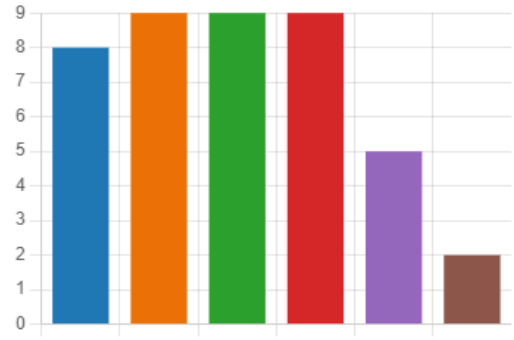
Yes	12
No	0



2. What type of projects do you work on?

More Details

New development	8
Street/road/highway work (wide...	9
Buried facility installation/replac...	9
Municipal projects	9
State or federal projects	5
Other	2



3. How often does your organization request utility location information for planning and design?

More Details

It is a usual and customary part ...	10
Information is requested as nee...	2
We never request such informat...	0
I am not sure	0

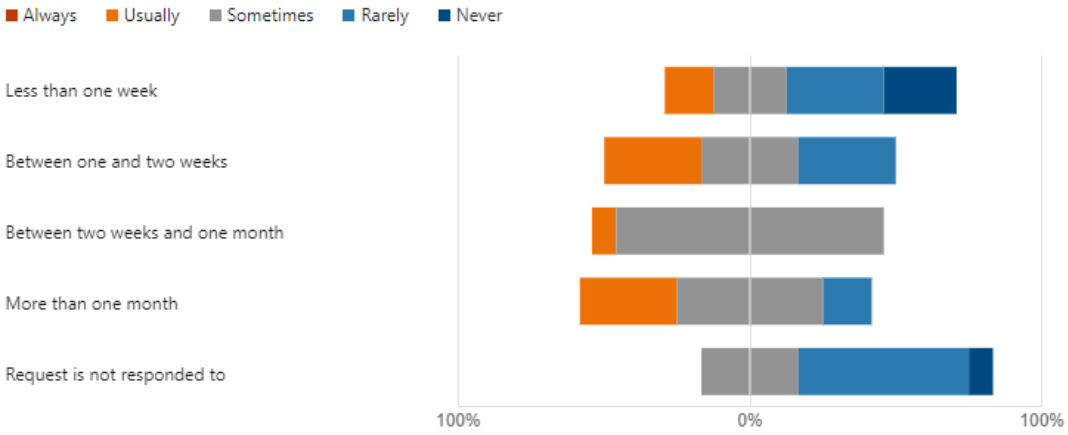
4. How much advanced notice does your organization provide when submitting planning and design requests?

More Details

Less than week	0
Between one and two weeks	4
Between two weeks and a month	4
More than one month	4

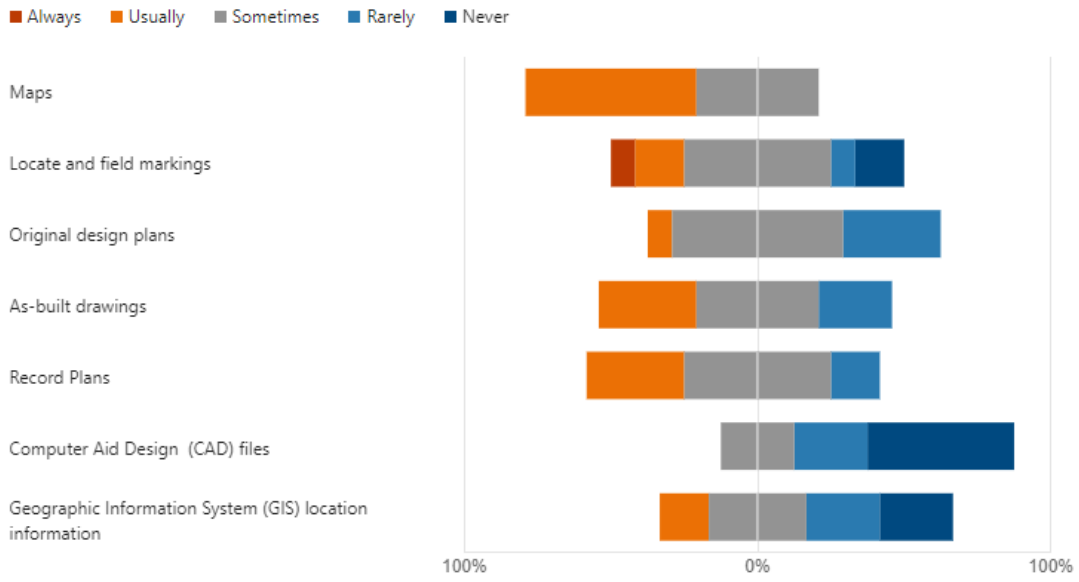
5. How long until you receive responses to planning and design requests?

More Details



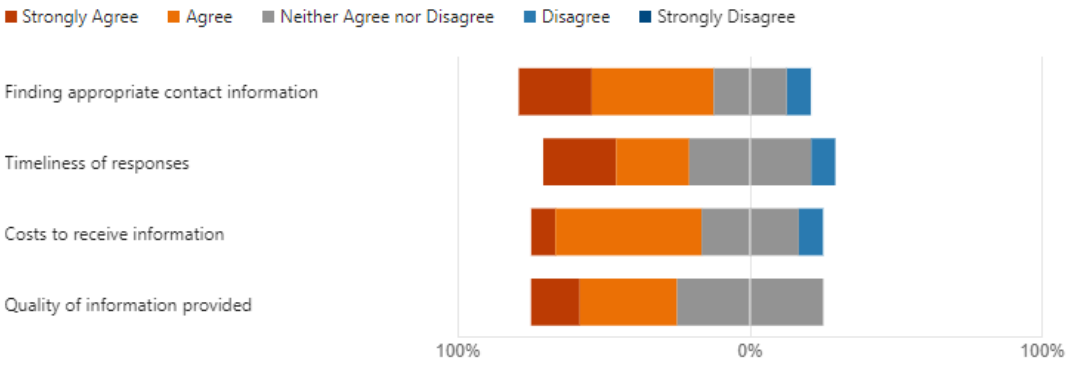
6. How often do you receive the following in response to planning and design requests?

More Details



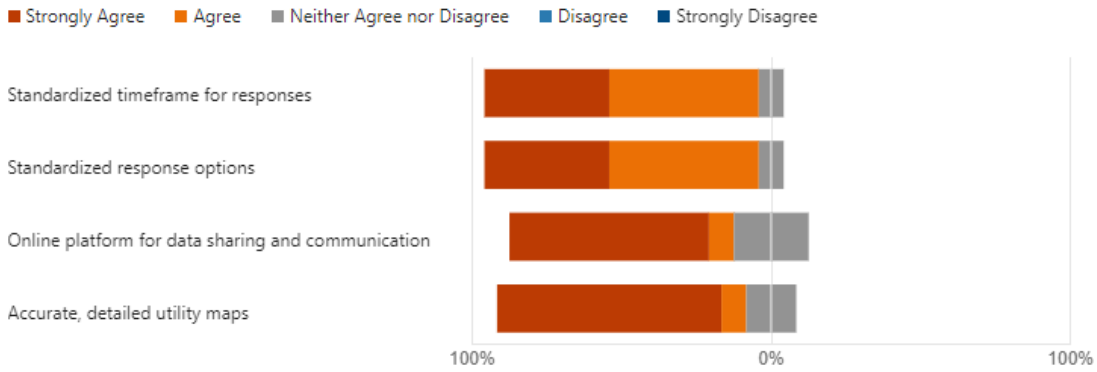
7. The following have been a challenge in regards to requesting planning and design information.

More Details



8. The following would enhance my organization's ability to plan/design projects involving excavation

More Details



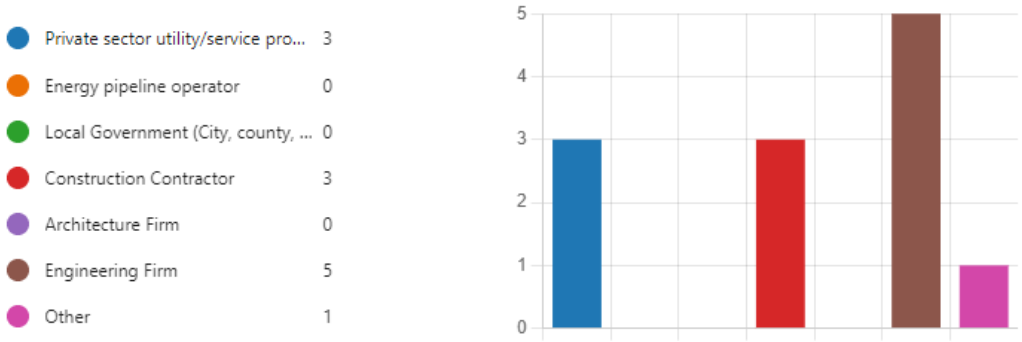
9. Is there anything else you would like to say?

1 Responses

ID ↑	Name	Responses
1	anonymous	Based upon the survey questions, it appears as though the emphasis is for companies to provide maps and drawings for utility requests. This approach is not enough. There must be a no-cost design ticket locate request option available via the 811 One Call system. Mapping standards vary from utility to utility and the accuracy of the maps have changed and are continuing to change as new technology becomes available. Having the facilities marked in the field is the most accurate method of determining potential conflicts during the design phase of a project.

10. Which option best describes your organization

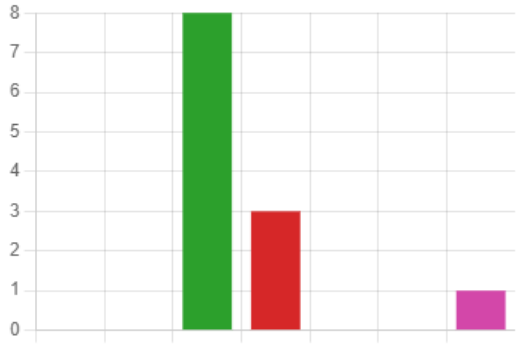
More Details



11. Which option best describes your role?

More Details

Architect	0
Landscape Architect	0
Licensed Professional Engineer	8
Licensed Contractor	3
Utility Designer/Engineer	0
Public Works Employee	0
Other	1



12. How many years of experience do you have in this industry?

More Details

Less than 5 years	1
5 to 10 years	0
More than 10 years	11

ATTACHMENT 2: PLANNING AND DESIGN RESOURCES OF OTHER STATES

1. Pennsylvania 811
   a. Pennsylvania Statutes: PA Act 287 of 1974, as amended by Act 50 2017: 2017 Act 50 - PA General Assembly (state.pa.us) and Underground Utility Line Protection Law | Pennsylvania One Call System (pa1call.org).
   b. Large Projects, Excavation Safety Guide 2022, Excavation Safety Guide : PA811 ESG 2022 (mydigitalpublication.com).
   c. User's Guide: Users-Guide_2021_1027_Final (4).pdf
   d. Design Ticket: Designers | Pennsylvania One Call System (pa1call.org).

2. Virginia 811
   a. Virginia Statutes: Chapter 10.3 Underground Utility Damage Prevention Act: Code of Virginia Code - Chapter 10.3. Underground Utility Damage Prevention Act.
   b. Large/Special Projects: § 56-265.17. Notification required prior to excavation or demolition; waiting periods; marking of proposed site (virginia.gov).
   c. Excavator's Manual: ProfExcavatorsManual.pdf (virginia.edu).
   d. Design: § 56-265.17:3. Procedures for operators in response to a designer notice (virginia.gov).

3. Oregon 811
   a. Statute: ORS 757.542 - Definitions for ORS 757.542 to 757.562 (public.law).
   b. Large Projects, Standards Manual: Microsoft Word - 12.12.18 Updated Standards Manual.doc (digsafelyoregon.com).
   c. Design: Oregon Secretary of State Administrative Rules.

4. Wisconsin 811
   a. Statutes: 182.0175 Damage to transmission facilities. Wisconsin Legislature: 182.0175.
   b. Excavator's Guide: Excavator's Guide (diggershotline.com).
   c. Design/Large Projects: Excavator's Guide (diggershotline.com).

5. Kentucky 811
   a. Kentucky Statute: Underground Facility Damage Prevention Act of 1994, Full Law - Kentucky 811.
   b. Large Project , Excavator's Handbook: Microsoft Word - Excavator Handbook 2022 Final.docx (kentucky811.org).
   c. Design Tickets: Design Tickets - Kentucky 811.

6. Georgia 811
    a. Statute: Georgia O.C.G.A. TITLE 25 Chapter 9 (2014): ga_code_25-9.pdf (state.ga.us). and Georgia Dig Law | Georgia 811.
    b. Large Projects: Large Projects | Georgia 811.
    c. Sufficient Particularity: Accuracy of Information: Sufficient Particularity | Georgia 811.
    d. Locate Request Ticket Size Policy: Locate Request Size Policy | Georgia 811.

7. Michigan 811
    a. Michigan Statute : Underground Facility Damage Prevention and Safety Act of 2013:
    mcl-Act-174-of-2013.pdf (mi.gov).
    b. Scope of Work and Ticket Types: Reference Material - MISS DIG 811.
    c. Planning a Project: Planning a Project - MISS DIG 811.
    d. Users Guide: NotificationAccess (missdig811.org).

8. Colorado 811
    a. Colorado Statute: Colorado Revised Statutes 2021:
    udpsafetycommissionstatutes101821.pdf (colorado.gov)
    b. Excavation Handbook: 74881_Colo811_ExcavatorHandbook.indd (colorado811.org).
    c. Procedures Guide: Procedure-Guide-Digital-update-Mar-2022-3.pdf (colorado811.org).

9. Indiana 811
    a. Indiana Statute: IC 8-1-26 Chapter 26. Damage to Underground Facilities Full Law - Know what's below. Call 811 before you dig. - Indiana 811.
    b. Design Tickets: Design Tickets - Know what's below. Call 811 before you dig. - Indiana 811