California Underground Facilities Safe Excavation Board

April 10-11, 2023

Agenda Item No. 11 Information Item – Staff Report

Planning and Design Ticket Development Update

PRESENTER

Anona Bonner, Policy Manager

SUMMARY

At the September 2022 Board meeting, members discussed continuing to research and clearly define "design," the components of the design process, and what types of information designers need at different stages of the design process. In March, the Planning and Design committee and staff released survey for both operators and designers to gather information on the planning and design process. The designer responses found that buried facility information is needed early in the design process to complete design deliverables. Operator responses to the survey were limited. Staff recommends the Board to conduct outreach to other state agencies (such as Caltrans) and local governments to understand their design process and utility coordination needs. Staff recommends the Board direct staff to develop the design ticket process and conduct outreach to designers, operators, and Regional Notification Centers for feedback regarding the process.

STRATEGIC PLAN

2020 Strategic Plan Objective: Improve Excavation and Location Practice Safety

2023 Plan Activity: Develop a Planning and Design Ticket

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 or require anyone to use it, though some laws (such as California Public Utilities Commission General Order 128) require operators to provide underground facility location

information.[1]

The Board investigated an incident that occurred on February 6, 2019, when a construction crew installing a fiber optic line for a major telecommunications company in the Richmond District of San Francisco struck the coupling connecting two plastic natural gas pipelines, releasing gas. The gas ignited, and the resulting fire destroyed a nearby restaurant and residence. Damages were estimated to exceed $10 million. While the excavator in the San Francisco incident did not pothole the gas line in a location that would have allowed them to avoid striking the pipeline with a backhoe, their general contractor did not provide them with a construction plan that would have avoided the pipeline. If existing buried facilities considered in developing the engineering plans, then engineers might have directed construction away from the gas line or at least alerted the construction crew to locations of potential conflict.[2]

During the Board's May 2021 meeting[3] and later,[4] the Board discussed whether a new type of ticket targeted at planning and design could alleviate delays in the locate and mark process.

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.[5] 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.[6] 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

[1] CPUC General Order 128, Rule 17.7.
[2] 19SA1279: Geary Street Natural Gas Explosion and Fire
[3] May 11, 2021, Agenda Item No. 9 USAN Issues in Locate and Mark
[4] July 13, 2021, Agenda Item No. 8, Discussion on Locate and Mark Issues
[5] Board Meeting November 9, 2021, Agenda Item #7
[6] November 9, 2021, Agenda Item No. 6, Comparing & Contrasting CO

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[7] 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.[8] 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 discussed not having resources to process design requests and not having updated records of their facilities.

During the Board meeting in September 2022,[9] staff presented the survey results regarding challenges Designers face when obtaining subsurface installation information during the planning and design phase of a project. These challenges include the quality of information, finding appropriate operator contact information, timeframe to obtain information, and the costs to receive the information. Staff also presented the CGA Best Practices findings that having different ticket options helps 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.[10] CGA states the design process in 811 should include gathering information, identifying utility locations, and utility coordination phases. In addition, 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 processes that include method for identifying such projects,

[7] Colorado 811 Statutes §103

[8] Common Ground Alliance NEXT Practices Report February 2021

[9] Board Meeting September 13, 2022, Agenda Item Number 7- Planning Ticket Update

[10] Common Ground Alliance Best-Practices 18.0, June 2021, pp. 7-10

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, and positive response. The Board discussed the need to further define the project size and the timeframes as needs may vary by project. The Board created a Planning and Design Committee of Members Johns and Johnson, to clearly define "design" and the components of the design process and identify what types of information designers need at different stages of the design process.

DISCUSSION

To continue developing a design ticket option, Board staff seeks to understand the components of the design process and what types of information designers need at different stages of the design process.

Staff created two surveys to gain additional insight to the planning and design process. The questions were developed taking into consideration the CGA Best Practices, Subsurface Utility Engineering Process, and the 30-60-90% Design review process to narrow down when and what information is needed. Neither the definition for "design" nor design ticket parameters were included in the introduction of the survey or in the questions as they have not been defined yet. The survey did not factor in project size or scope but rather focused on gaining general insights into the design process. Some respondents did not answer all the questions.

Staff created an outreach plan to drive survey participation from designers and operator. This plan included outreach to the regional notification centers, state agencies, and trade associations.

Design Development (30-65-90%) Process

The planning and design phase of a project fully defines the project in preparation for construction. The 30-60-90% Design is the formal design review schedule in which the percentage indicates the total design efforts for the project.[11] During each formal design review, the reviewers review the design deliverables and discuss any conflicts or issues. The designer incorporates feedback during each review session for the next design review and continues to build the design until it is complete.**Error! Bookmark not defined.**

Conceptual Design

The Conceptual design is a concept design to assess the feasibility of the project.[12]

[11] Seattle Public Utility Design Standards and Guidelines

[12] Pooja, "6 Type of Civil Engineering Drawings for Construction – Very useful to know"

The designer makes reasonable efforts to obtain all the information about the buried facilities in the planned area of excavation from the operators. Based upon the survey results (Attachment 1), a high percentage of designers responded that they need buried facility information during this phase of the project. The designer receives operator information regarding the buried facility locations. Designers use information gathered during utility research, surveys of surface indicators, and documentation of location verification activities to identify existing buried facilities on design plans and other relevant design documents.[13,14]

Once the concept design is approved, then the designer proceeds with develop more detailed design drawings.

30% Design

The 30% Design plans is a preliminary design of the project which includes key elements and features within the design.[15] The preliminary design based upon information gathered and is not complete.

According to the Los Alamos National Laboratory Engineering Standards, site plans depicting the "underground utilities, and special site conditions and or constraints"[16] occurs around the 30% Design. Proposed utility locations, drainage, etc. is displayed on the preliminary plan.

The Washington Department of Transportation Utilities Manual states "utility conflicts should be sufficiently identified and any additional investigative engineering"[17] by the 30% Design review. During this phase, the identification of the Subsurface Utility Engineering (SUE) quality levels occurs to investigate utility conflicts and potential relocations.[18]

SUE is the process and practice of investigating, designing, and protecting buried facilities by identifying and mitigating conflicts prior to construction. The quality levels outlined in *Standard Guideline for Investigating and Documenting Existing Utilities (ASCE 38)* are:

- Quality Level D: Initial research of the best available records from the operator.
- Quality Level C: Conduct a site survey to identify surface indicators.
- Quality Level B: Information is gathered through geophysical investigations to identify location of buried utilities.
- Quality Level A: Physical exposure of the subsurface infrastructure via potholing to obtain the horizontal and vertical location. Additional information such as size and material can also be confirmed. This is the highest quality level to achieve the highest

[13] Common Ground Alliance Best-Practices 18.0, June 2021, pp. 7-10
[14] BlueEnt, "The Importance of the Conceptual Design Phase in Construction"
[15] Seattle Public Utilities Design Standard Guidelines, Chapter 1 SPU Design Process, p. I-25
[16] Los Alamos National Laboratory Engineering Standard Manual STD-342-100
[17] M 22-87 WSDOT Utilities Manual - Chapter 6 Project Delivery and Utility Relocation (wa.gov)
[18] Washington Department of Transportation Deliverables Expectations Matrix, pp.5

level of accuracy of the utilities.

The SUE engineer evaluates the risk of the utility and assigns an appropriate quality level for the buried facilities within the project site. The quality levels for a project may vary within the utility design. The quality level provides for consistent understanding in the accuracy of location information of buried facilities included on engineering plans.

60% Design

The 60% Design plans contains most of the technical information including all major facilities but is not complete yet. [19]

According to the Los Alamos National Laboratory Engineering Standards, "utility plan sheets identify the proposed improvements with existing utilities clearly identified in locations where conflicts could exist" during this review.

The Washington Department of Transportation Utilities Manual states the "utility conflicts and relocation details should be well defined, understood, and agreed to by all parties"[20] at the 60% Design review. At this phase in the project, utility relocation coordination meetings commence. Activities completed around the 60% Design review include confirmation of utility conflicts and meetings regarding utility relocation.[21]

90% Design

At the 90% Design review, the design plans are "substantially complete". [22]

The Washington Department of Transportation Utilities Manual states "all necessary utility relocation issues should be identified and relocation details such as Relocation Plan Approval" should be almost complete." [23] Any utility agreements should be executed or close to being executed. This is the precontract review.[24]

Survey Responses from Designers

The survey questions for designers were geared towards gathering input on what type of utility information designers needed, when the designers needed the information, and what the designers do with the utility information received from the operator during the design process. The designer survey (Attachment 1) garnered 197 responses. The survey respondents primarily consisted of architects and engineers.

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[19] Seattle Public Utilities Design Standard Guidelines, Chapter 1 SPU Design Process, p. I-26
[20] M 22-87 WSDOT Utilities Manual - Chapter 6 Project Delivery and Utility Relocation
[21] Washington Department of Transportation Deliverables Expectations Matrix, p.5
[22] Seattle Public Utilities Design Standard Guidelines, Chapter 1 SPU Design Process, p. I-27
[23] Seattle Public Utilities Design Standard Guidelines, Chapter 1 SPU Design Process, p. I-27
[24] Washington Department of Transportation Deliverables Expectations Matrix, p. 5

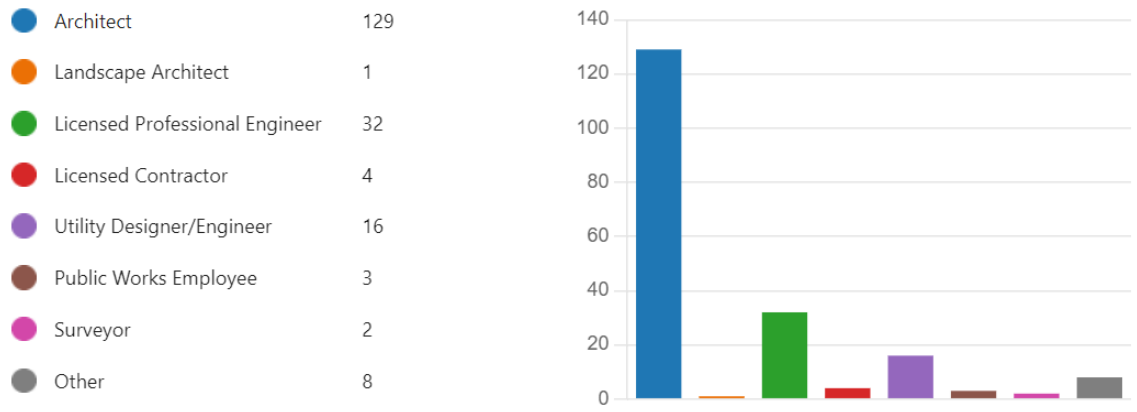


Figure 1: Designer responses to the question "Which option best describes your role?"

The designer responses indicate buried facility information is needed early in the design process.

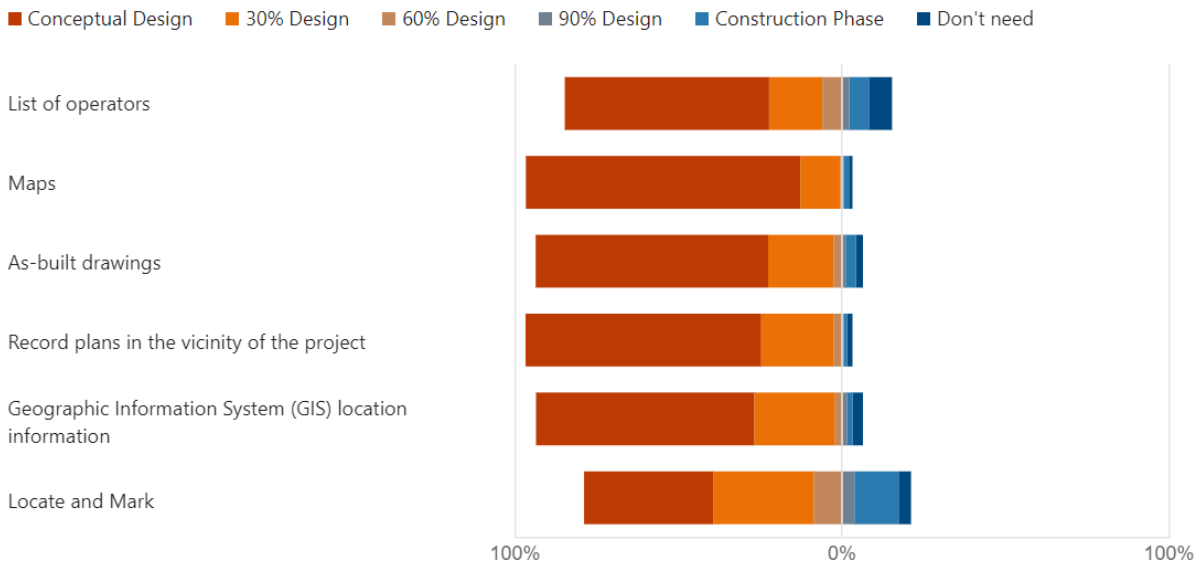


Figure 2: Designer responses to the question "At what phase in the planning and design process, do you need the following information from the operator?"

Designers provided additional feedback on when information was needed, and/or additional information needed:

> *"A) Potholes likely only confirm known utility locations. Unknowns' locations are unknown, and thus typically not discovered until during excavation. B) Project delivery type [Design-Bid-Build, Design-Build, etc] affects some of the questions on this survey, and was not addressed.*

During D-B the contractor is available to provide potholes during conceptual design. During D-B-B the contractor is unknown until the design is completed based on known drawings & info. C)The least expensive & most impactful time to affect the design is during Conceptual Design. Any changes to the design after Conceptual Design require more effort, coordinating, and dollars as 100% Design approaches. Changes during Construction are the worst."

"existing utilities (location, type, easements, etc.) drive a lot of design decisions and related costs. Most clients want to have an idea of cost at the conceptual or 30% Design level. Knowing the site constraints at the 30% Design level is much more efficient in the design process. Actual potholing can occur in the 60% Design level to confirm key existing utilities that conflict or require relocation."

"*It would be extremely beneficial to be able to have utility locates (painted markings) early in the design process rather than needing to wait until construction is eminent or potholing is performed. In most cases we end up needing to revise a contract with our SUE subconsultant once painted locating is done. We don't always get accurate records in the records request phase so our existing utility base maps that we are designing from are not always accurate when preparing a pothole plan."*

"*Future plans for improvement of systems / technology that could affect the specific project."*

It is unclear why some designers responded needing the information later in the design process, at construction, or not at all.

Designers also provided additional feedback indicating costs and project delays are significant if the buried facilities are not identified early and accurately in the design phase.

"*Precise utility locations and potholes may be required earlier on some projects, for example, major underground facilities where feasibility of avoiding utilities can dramatically affect cost and success of the project"*

"*Obtaining prompt responses to what utility sizes, site locations, and age is important to the anticipated cost of a project. This is true for both renovations and new construction. Locating where the utilities enters*

the site often takes months for a Rep to come to the site and locate the existing ones."

"Sooner we take in account all the site limitations, the better in a long run to make best decisions possible to avoid costly changes".

"Many mistakes that impact a project schedule or costs result from a lack of detailed information and confirmed conditions at the very early stage of a project, most of which could have been prevented."

"determining possible undisclosed below grade hindrances will save on the final budget significantly."

"It's really important, saves money for the client and operator. Operator's save by not having to pull crews from planned activities for relocates or emergency."

The designers use the information gathered from the operators to create and complete a variety of design documents and activities. Designers provided feedback indicating that the design documents and activities are completed early in the design process.

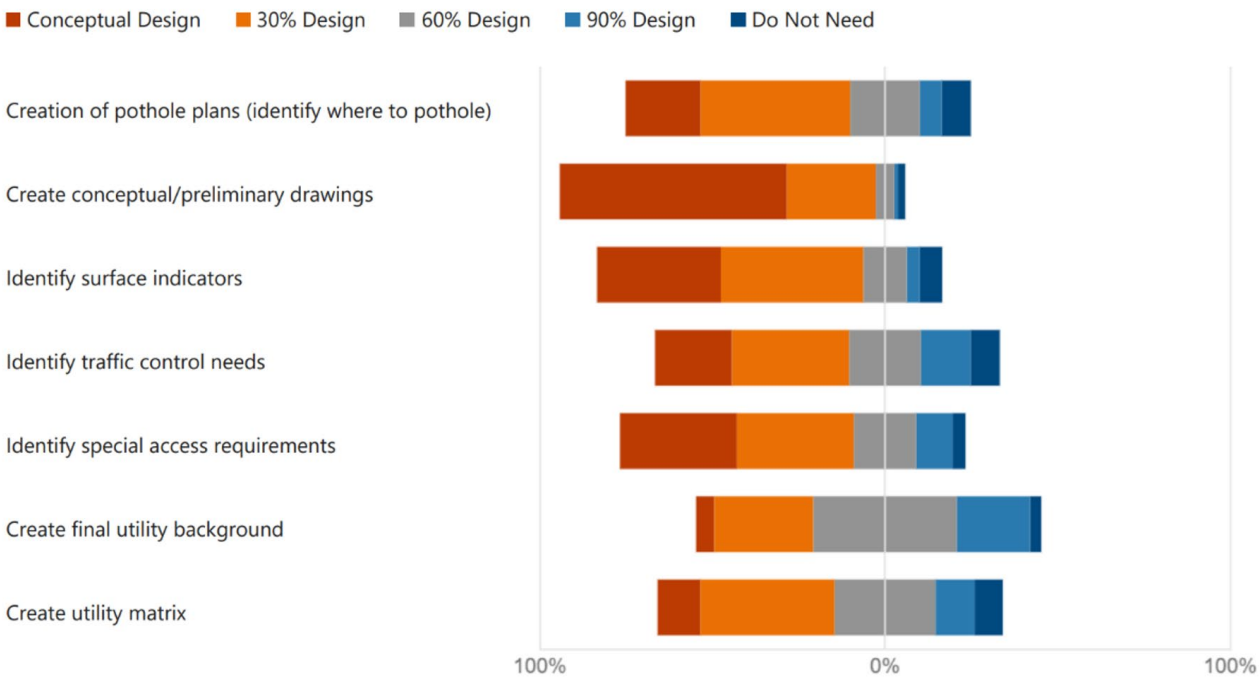


Figure 3: Designer responses to the question "Once you have the facility information, when do you complete the following activities?"

Designers responded that potholing is completed between the conceptual and 60% Design in

the design process to confirm buried facilities during the design process.

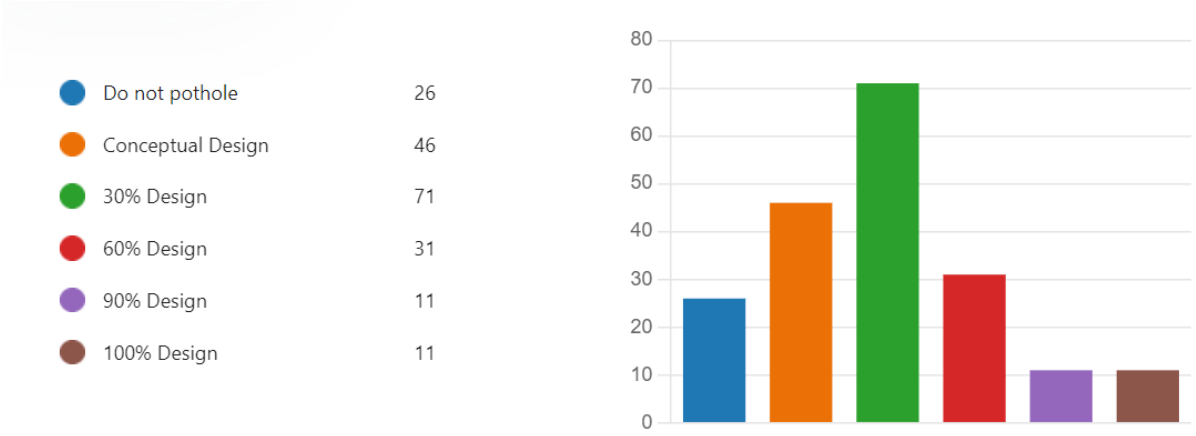


Figure 4: Designer responses to the question "When does your organization (or a subcontractor) pothole to confirm buried facilities during the design process?"

One designer commented:

> *"Often we have to state we are going to pothole to get utility markings. Otherwise we tend to get general information that says whether a utility is in the vicinity or not. Generally we don't get specific information about location, depth or size which is why we tend to get the potholing done early in the design process."*

Designers responded how often certain factors determine whether potholing occurred prior to final design.

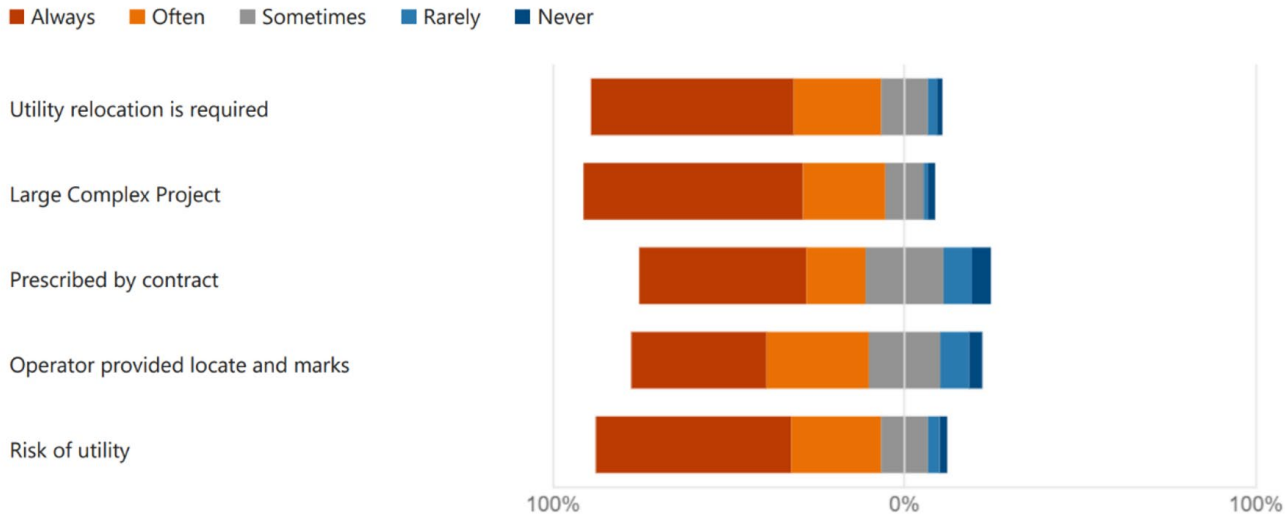


Figure 5: Designer responses to the question "Do the following factors determine whether or not potholing is completed prior to final design?"

When asked if the Designers provide a copy of the project drawings to the operator as part of the design process, most of the responses indicated that drawings are “always” or “sometimes” provided with an increase of the designers that provide the drawings later in the design process.

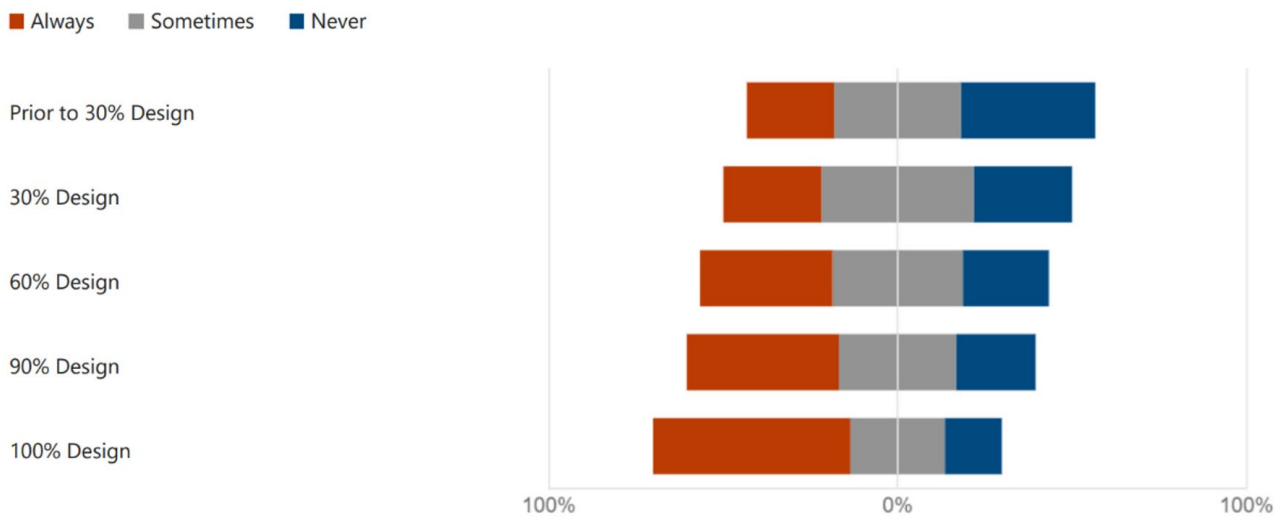


Figure 6: Designer responses to the question "Does your organization provide project design drawings to the operator as part of your Design Ticket or during the Design Ticket process?"

The designer responses varied regarding the amount of reasonable time for the operator to respond to the design ticket.

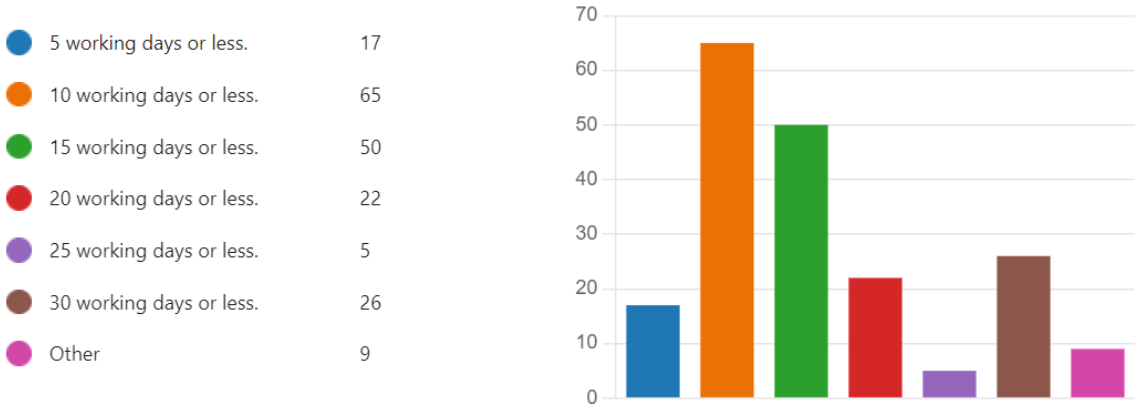


Figure 7: Designer responses to the question "For a potential new Design Ticket, how much time is reasonable for the operator to provide information affecting the excavation area (including but not limited to maps, surveys, as-builts, drawings or other information regarding subsurface infrastructure)?”

Overall, the responses indicate designers need buried facility information early in the design process. The responses indicated information is primarily needed from the operator during the

conceptual design phase while the design work and activities are completed during the conceptual and 30% Design phase. Specifically, responses indicate that designers perform the following work in the conceptual phase:

- 84 out of 197 designers create pothole plans;
- 74 out of 197 develop a utility matrix; and
- 66 out of 197 identify traffic control needs.

The survey responses also indicate field locate and marks are needed early in the design phase versus waiting until construction as significant costs and delays occur due to project redesign and inaccurate buried facility information. It is unclear why some designers do not need certain information or need it later in the process.

Survey Responses from Operators

Questions for the operators asked if they needed design drawings from the designer during the design process, what factors impact the timeframe to respond to a design request, and how much time an operator needs to respond to a ticket. The operator survey (Attachment 2) was limited and garnered 16 responses. Approximately eight of the operators are government utility operators.

The operator responses (Attachment 2) varied for reasonable time to provide information affecting the excavation area.

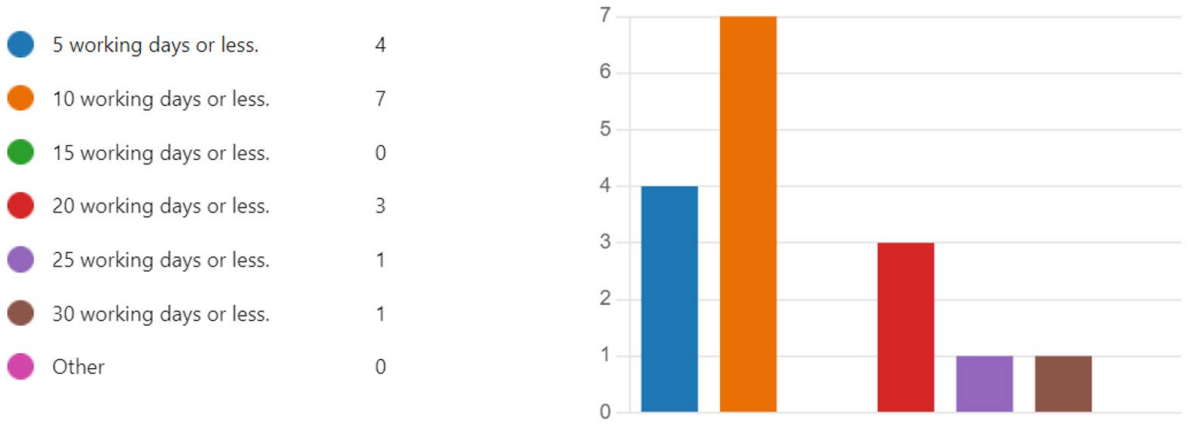


Figure 8: Operator responses to the question "For a Design Ticket, how much time do you think is reasonable for your company to provide information affecting the excavation area (including but not limited to maps, surveys, as-builts, drawings or other information regarding subsurface infrastructure)?"

The survey asked operators what factors determine how long it takes to fulfill a design request.

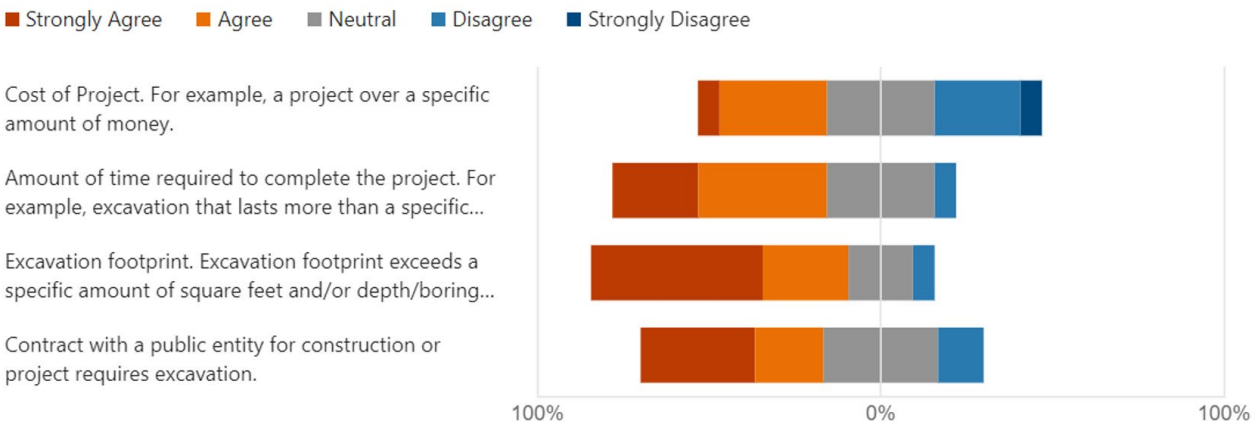


Figure 9: Operator responses to the question "Which of these factors determine how long it takes to fulfill a design request?"

Fourteen out of the 16 operators indicated they want design documents to inform their research. Thirteen out of 16 operators indicated that they want copies of the final design for their records.

Operators provided additional feedback for the development of a Design ticket:

> *"permit prior to request"*
>
> *"I am part of a mark out team. The earlier we get the request the better. We usually get the request with only two days notice. That is unreasonable. We may get 50 to 100 requests in one day. Some are not needed to be marked, but still when one has 20 locations to go in one day, it is not reasonable, so request that are 10 days ahead would allow for better planning. There are times when the request entails a short area, but there are times when it is several blocks. Also it would help if the request specifies which side of the street the actual job is being done. Across from the address could mean right in front of it or on the other sidewalk. It would also held if it indicates from the centerline to the PL or from curb to curb."*

Overall, the operator responses were limited to inform development of a Design Ticket and may represent personnel involved with operator locate and mark rather than records research. However, responses indicate time in addition to the standard two-day ticket is needed to process design requests and operators are interested in obtaining copies of design documents.

Other States Design Tickets

Staff continued to research other design tickets in other states. Highlights of the research (Attachment 3):

- 11 out of 19 states allow the operator to locate and mark, provide information or drawings, or allow records to be inspected/copied by the requestor.
- 3 out of 19 states require locate and mark as part of the design ticket.

Pennsylvania (PA) Designer Notification Process

Pennsylvania 811 offers two types of design notifications: Preliminary and Final Design. Preliminary notifications occur early in the design process when the scope of the project is being determined and occurs more than 90 business days before the completion of the final design. The final design notification occurs between 10 and 90 business days prior to the completion of the final design. Within 10 business days, the operator can mark-up the drawing provided, send the designer information, or provide information via an alternate method that the designer agrees too.[25] The design notification option has been a part of the PA Underground Utility Line Protection Law since the inception of law. Pennsylvania 811's approach to the design ticket is that safety begins at design, not during construction when the excavation occurs.

Pennsylvania 811 implemented a free "drawing exchange" application Coordinate PA.[26,27] The application allows designers, local governments, etc. to upload upcoming project designs into a centralized software application to foster collaboration and utility coordination throughout the project lifecycle. Users can share project information and change settings to allow others to see the project. For example, local governments can upload upcoming right of way or paving projects allowing them to collaborate with other project designers looking to complete excavation projects within each of the project site. Coordinate PA supports all Pennsylvania 811 ticket types throughout the project lifecycle. Pennsylvania 811 staff indicated they would be open to providing a Coordinate PA demo to the Board.

[25] Designers | Pennsylvania One Call System (pa1call.org)
[26] PA811 Excavation Safety Guide 2023, pp. II-V
[27] Coordinate PA | Pennsylvania One Call System (pa1call.org)

RECOMMENDATION

Staff recommends the Board to direct staff to schedule a demo of the Coordinate PA system for a future Board meeting. Staff recommends the Board to conduct outreach to other state agencies (such as Caltrans) and local governments to understand their design process and utility coordination needs. Staff also recommends the Board explore the need for field locate and marks including costs to understand the impact of including with the design ticket. Staff recommends the Board direct staff to develop the design ticket process and conduct outreach to designers, operators, and Regional Notification Centers for feedback regarding the process.

Attachments:

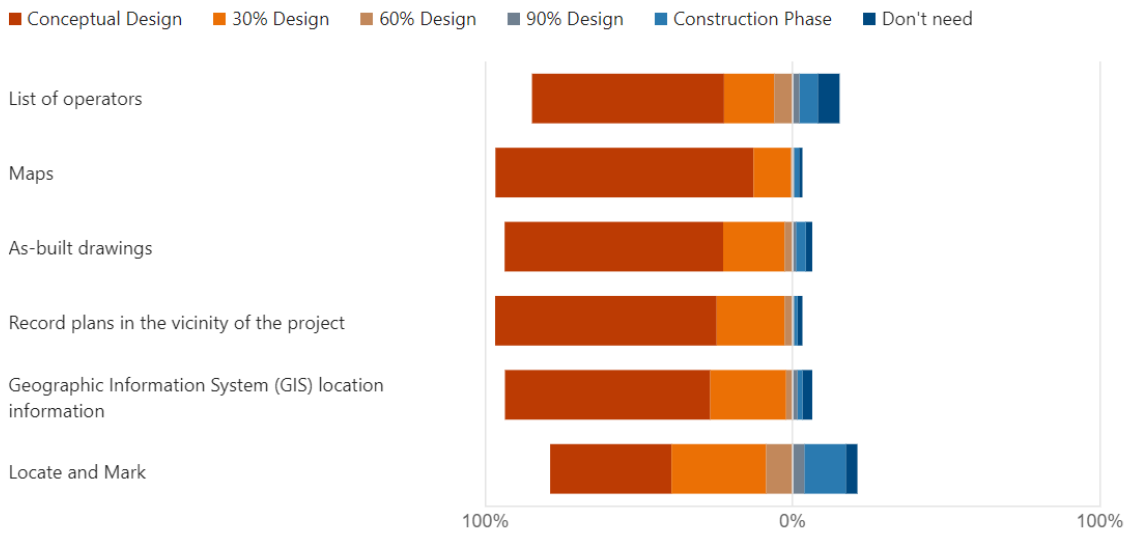
1. Designer Survey
2. Operator Survey
3. Planning and Design Resources of Other States

Attachment 1

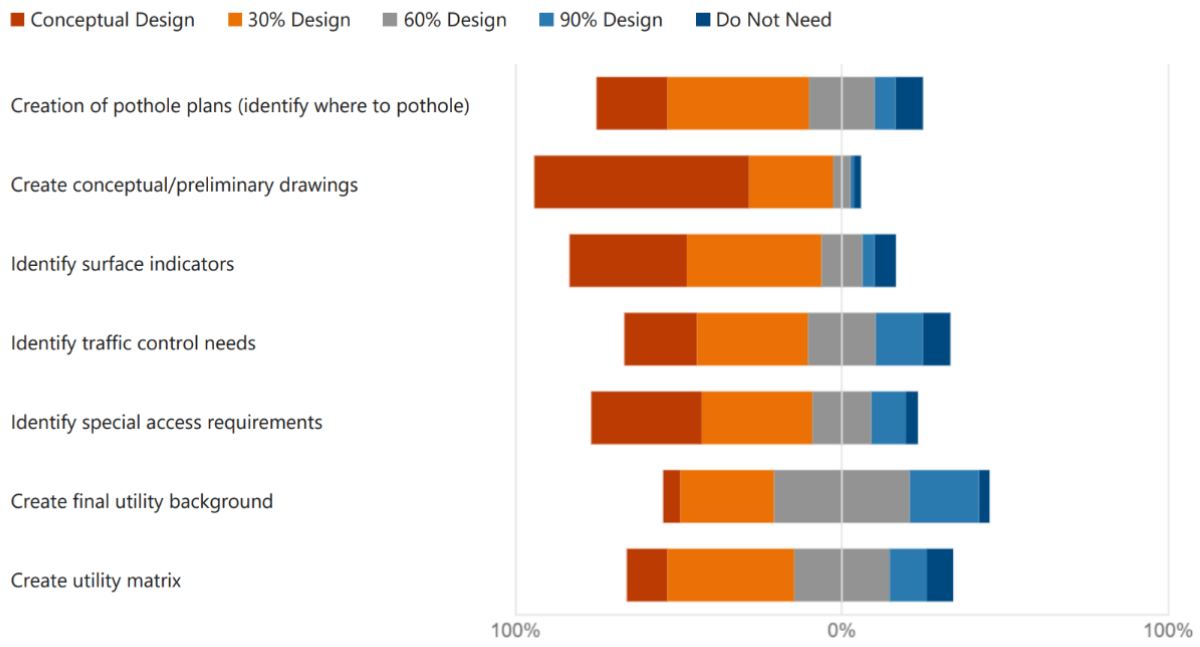
Designer Survey

1. At what phase in the planning and design process, do you need the following information from the operator?

More Details

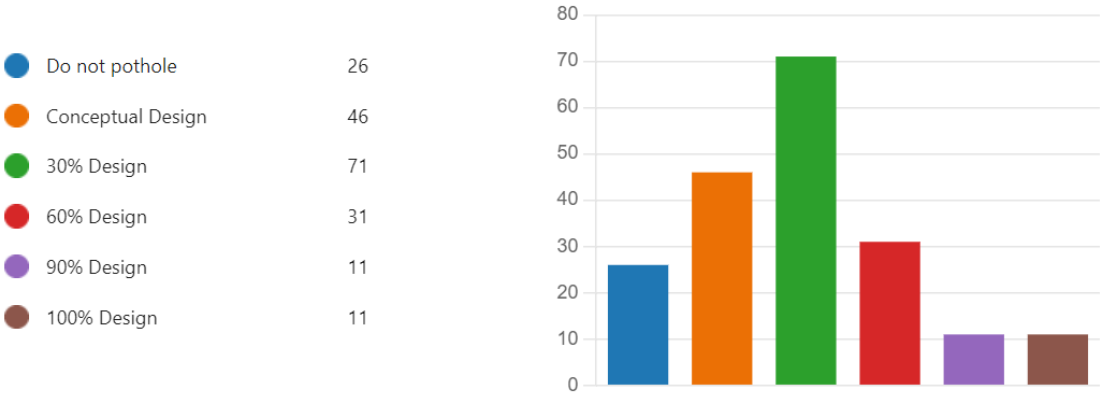


2. Once you have the facility information, when do you complete the following activities?

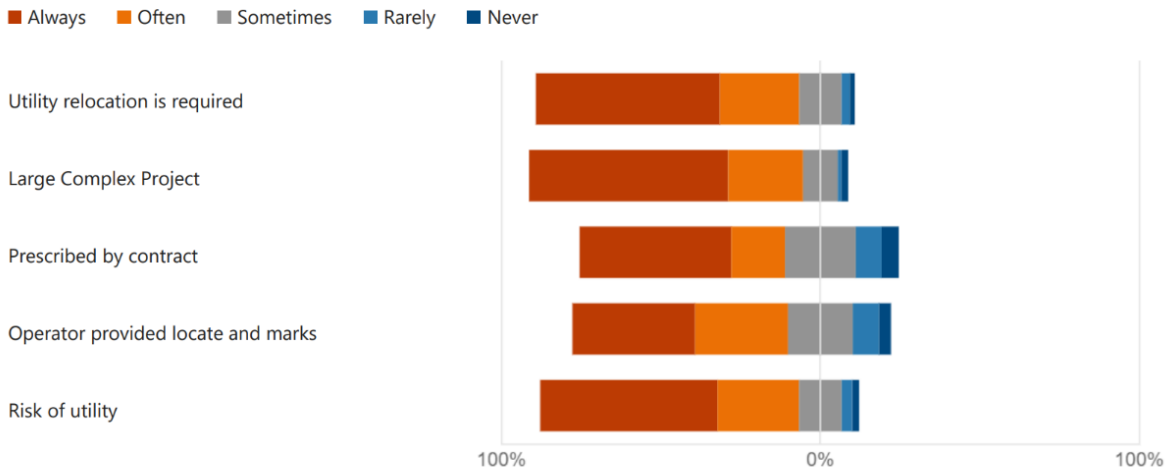


3. When does your organization (or a subcontractor) pothole to confirm buried facilities during the design process?

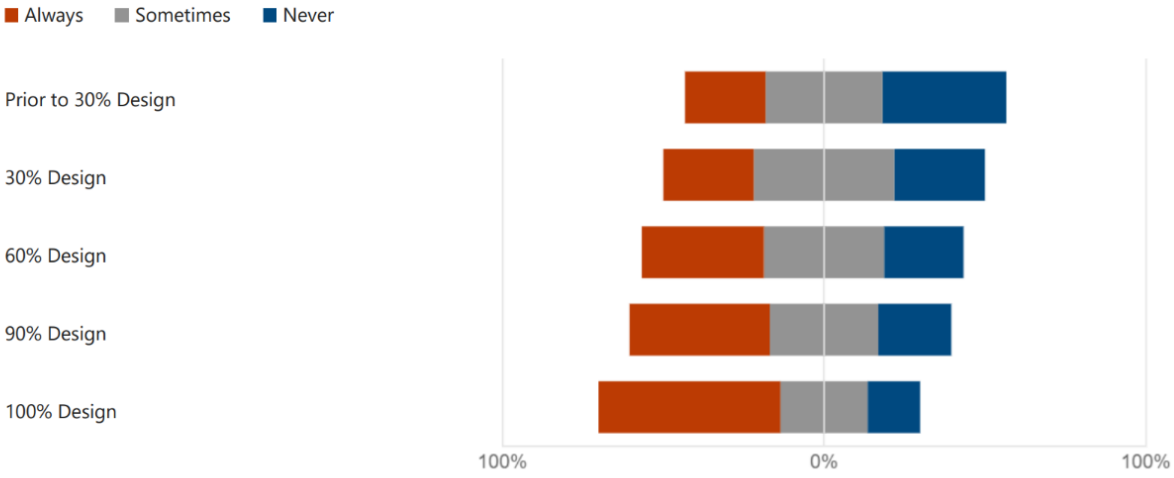
More Details



4. Do the following factors determine whether or not potholing is completed prior to final design?



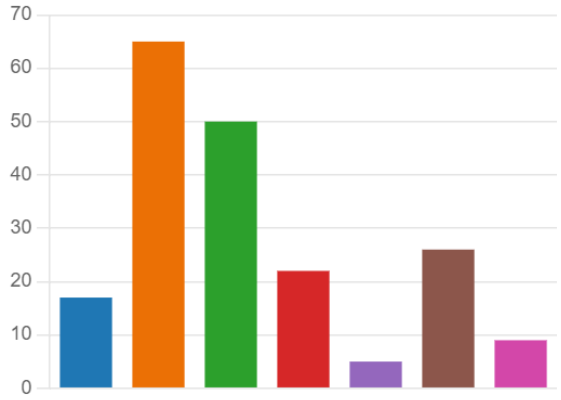
5. Does your organization provide project design drawings to the operator as part of your Design Ticket or during the Design Ticket process?



6. For a potential new Design Ticket, how much time is reasonable for the operator to provide information affecting the excavation area (including but not limited to maps, surveys, as-builts, drawings or other information regarding subsurface infrastructure)?

More Details

5 working days or less.	17
10 working days or less.	65
15 working days or less.	50
20 working days or less.	22
25 working days or less.	5
30 working days or less.	26
Other	9



7. Do you have additional information you would like to share about the planning and design process or a future design ticket?

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Responses

Latest Responses

ID	Do you have additional information you would like to share about the planning and design process or a future design ticket?
1	Future plans for improvement of systems / technology that could affect the specific project.
3	Good collaboration and transparency is needed. Safety is the number one priority.
8	No
9	The "sooner" the better on any design related information and data...That's the reality and truth to the matter.
10	NA
15	dig alert marks the site with information on existing utilities
18	No
27	What the [redacted] is "potholing"?
32	This survey should go to geotechnical engineers.
33	Cities and utility companies need to keep better records of all their underground utilities, we should never have to guess where they are located.

34	determining possible undisclosed below grade hindrances will save on the final budget significantly
54	More information or guidance can be provided on how to properly mark out the extent of where underground survey is requested.
59	As an architect, I would expect needed information about utilities to be developed by my consultants, if needed.
60	A) Potholes likely only confirm known utility locations. Unknowns' locations are unknown, and thus typically not discovered until during excavation. B) Project delivery type [Design-Bid-Build, Design-Build, etc] affects some of the questions on this survey, and was not addressed. During D-B the contractor is available to provide potholes during conceptual design. During D-B-B the contractor is unknown until the design is completed based on known drawings & info. C) The least expensive & most impactful time to affect the design is during Conceptual Design. Any changes to the design after Conceptual Design require more effort, coordinating, and dollars as 100% Design approaches. Changes during Construction are the worst.
61	There needs to be definitions and clarification for some of the “terms” ie “designer or operator” vs. “Architect or Engineer or contractor or subcontractor???
65	not that I can think of
66	N/a
67	You have not defined what a "design ticket" is and I believe that it is a term that varies geographically.
75	What are you defining as a "design ticket?" A new project I assume?
77	As an architect these questions lacked context. Use of pot holing and trenching for design depends on rare condition that precise location for design is needed. Would have preferred question about role at the beginning.
81	We typically rely on Civil and wet/dry utility consultants. Most of the info we work with comes through them.
83	No
86	Just make sure there are weekly coordination meetings with all parties involved, regardless if other feel they do not need to attend
92	nO
94	1. Obtaining prompt responses to what utility sizes, site locations, and age is important to the anticipated cost of a project. This is true for both renovations and new construction. Locating where the utilities enters the site often takes months for a Rep to come to the site and locate the existing ones.
96	No
100	I wish the operators were more responsive and less recalcitrant; especially when I'm trying to HELP them work out problems.
102	No

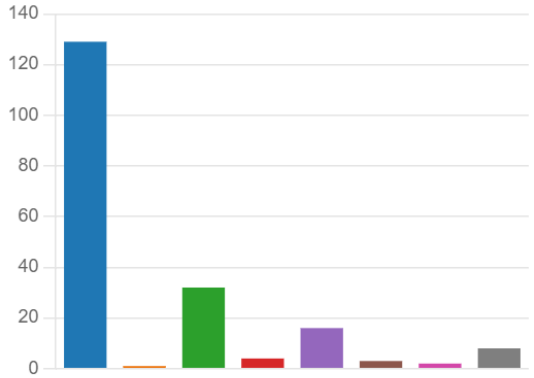
103	No
111	yes, State does long projects, and sometimes projects that are at MANY numerous locations. (As opposed to a single site, that outside agencies might conduct; say downtown block development). USA doesn't like these vast or varied location requests. Some USA util companies are creating own WebBased request interfaces, that also limits such requests.
114	Sooner we take in account all the site limitations, the better in a long run to make best decisions possible to avoid costly changes.
115	Utility companies often mis-marked their facilities in the field.
118	No, I'm retired from practicing as an Architect
122	please update your utility contact information. I keep my own database as a lot of contact information is out of date through the design search.
126	Make the Company's address a *required field so that we don't have to call or google it every time. (office staff)
132	Discovering and confirming as-built conditions must be included in any contract. Quality project coordination includes the owner, the designers and the utility providers.
139	None
141	I believe this survey could be better worded and allow for multiple answers. Many or most of our answers would be better answered by "it depends."
142	It would be extremely beneficial to be able to have utility locates (painted markings) early in the design process rather than needing to wait until construction is eminent or potholing is performed. In most cases we end up needing to revise a contract with our SUE subconsultant once painted locating is done. We don't always get accurate records in the records request phase so our existing utility base maps that we are designing from are not always accurate when preparing a pothole plan.
144	With the various types of projects, I have done over my career. I have found it helpful to be flexible during the design process.
148	existing utilities (location, type, easements, etc.) drive a lot of design decisions and related costs. Most clients want to have an idea of cost at the conceptual or 30% Design level. Knowing the site constraints at the 30% Design level is much more efficient in the design process. Actual potholing can occur in the 60% Design level to confirm key existing utilities that conflict or require relocation.
149	Marking of utilities, USA, is never allowed for design and should be. They will only do it for construction. Which can be too late. Helpful for EVERYONE to know early in design.
151	This will be a huge benefit to the industry & the public - better information sooner will allow better designs & more efficient construction.
153	Precise utility locations and potholes may be required earlier on some projects, for example, major underground facilities where feasibility of avoiding utilities can dramatically affect cost and success of the project

155	More cooperation from utility companies
157	Design Ticket?? What are you saying? There is a contract, then there is design. Is that a "Design Ticket"?
162	Many mistakes that impact a project schedule or costs result from a lack of detailed information and confirmed conditions at the very early stage of a project, most of which could have been prevented.
165	No
166	Often we have to state we are going to pothole to get utility markings. Otherwise we tend to get general information that says whether a utility is in the vicinity or not. Generally we don't get specific information about location, depth or size which is why we tend to get the potholing done early in the design process.
167	Better to have a general understanding of where the infrastructure is so we can design around it or plan to relocate around it. Earlier the better.
168	The wording of these questions is different than what I am used to seeing and led me to being uncertain about my answers.
169	Actually having dig alert markings on the ground during the design phase will help eliminate requests later in many instances
170	quality and quantity of information dictates need for potholing or added research
173	Yes, SUE work should be mandatory for all projects and permitting efforts.
175	Being able to request USA markings during the design process would be extremely beneficial in allowing for more accurate plans and make for a safer working environment.
176	I don't have additional information.
179	I want to retire at my current age of 92
181	Use but verify county record plans and PG&E records when available.
185	It’s really important, saves money for the client and operator. Operator’s save by not having to pull crews from planned activities for relocates or emergency.

8. Which option best describes your role?

More Details

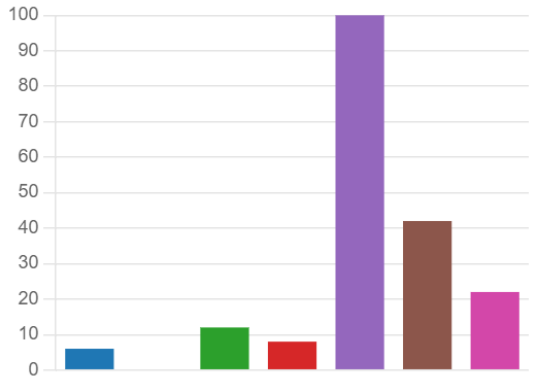
Architect	129
Landscape Architect	1
Licensed Professional Engineer	32
Licensed Contractor	4
Utility Designer/Engineer	16
Public Works Employee	3
Surveyor	2
Other	8



9. Which option best describes your organization?

More Details

Private sector utility/service pro...	6
Energy pipeline operator	0
Local Government (City, County)	12
Construction Contractor	8
Architecture Firm	100
Engineering Firm	42
Other	22



10. Would you be willing to talk to Board staff about your answers for to better understand your situation?

More Details

Yes	77
No	118

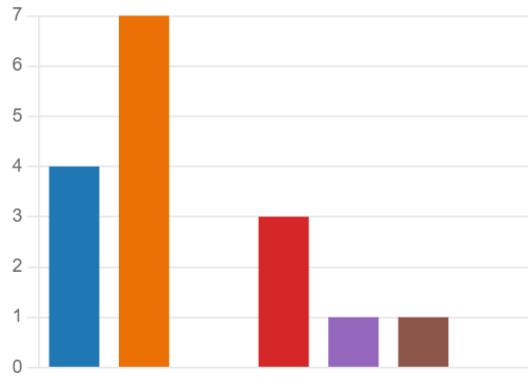
ATTACHMENT 2

Operator Survey

1. For a Design Ticket, how much time do you think is reasonable for your company to provide information affecting the excavation area (including but not limited to maps, surveys, as-builts, drawings or other information regarding subsurface infrastructure)?

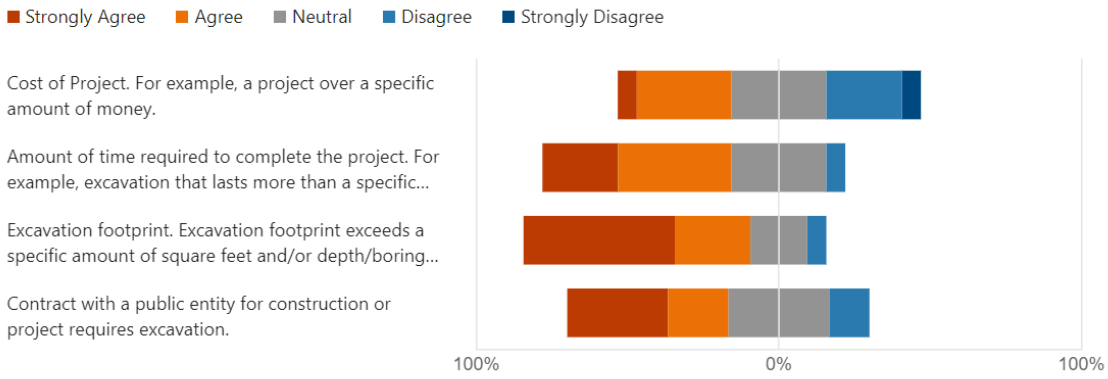
More Details

5 working days or less.	4
10 working days or less.	7
15 working days or less.	0
20 working days or less.	3
25 working days or less.	1
30 working days or less.	1
Other	0



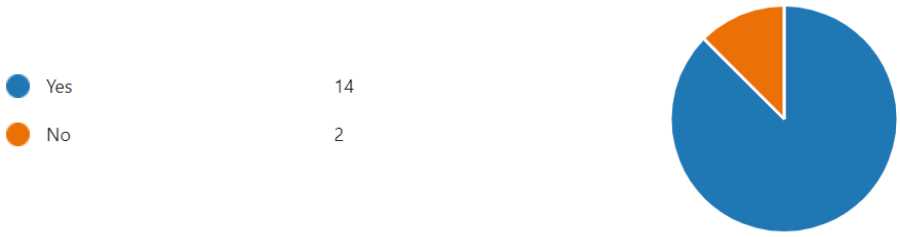
2. Which of these factors determine how long it takes to fulfill a design request?

More Details



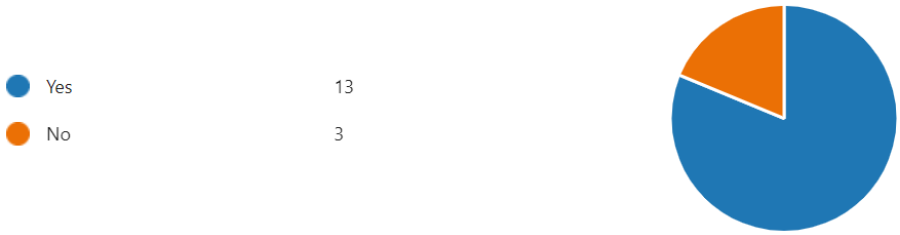
3. As an operator, do you want design documents to inform your research?

More Details



4. Do you want final design documents for your records or other purposes?

More Details



5. Do you have additional information you would like to share about the planning and design process or a future design ticket?

More Details

3
Responses

Latest Responses

"I am part of a mark out team. The earlier we get the request the better. We ...

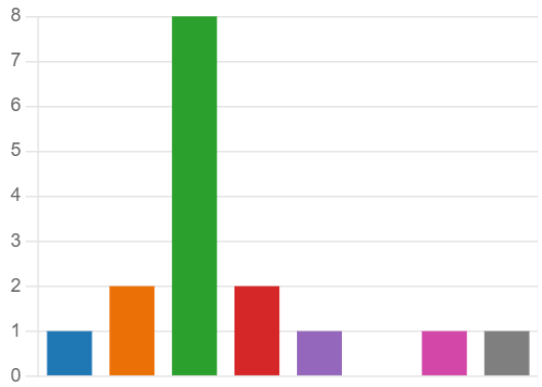
"None"

ID	Do you have additional information you would like to share about the planning and design process or a future design ticket?
1	Permit prior to request.
14	None
16	I am part of a mark out team. The earlier we get the request the better. We usually get the request with only two days notice. That is unreasonable. We may get 50 to 100 requests in one day. Some are not needed to be marked, but still when one has 20 locations to go in one day, it is not reasonable, so request that are 10 days ahead would allow for better planning.There are times when the request entails a short area, but there are times when it is several blocks. Also it would help if the request specifies which side of the street the actual job is being done. Across from the address could mean right in front of it or on the other sidewalk. It would also held if it indicates from the centerline to the PL or from curb to curb.

6. Which option best describes your organization?

More Details

Electric Operator	1
Energy pipeline operator	2
Local Government (City, County)...	8
Water/Sewer operator	2
Telecommunications operator	1
Gas operator	0
Private operator	1
Other	1



7. Would you be willing to talk to Board staff about your answers for to better understand your situation?

More Details

Yes	8
No	8

Attachment 3
Planning and Design Resources of Other 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
AL	No	Yes	No	No	Mark/Information such as drawings or facility records/Allow submitter to inspect or copy drawings or other records	no	5 working days
CO	Some operators may charge for design service. SUE fees paid by project owner	Yes	Yes, Large Projects (Sue Required)	Yes- through separate Meeting Request Ticket- but not all operators offer.	General Information for Design- not including depth. Also, Mark on ground option.	For SUE only- but does not include depth	10 business days
DE	No	Yes	Yes, Duties of Designers outlined in the law.	No	field markings, providing records, or making other appropriate responses	No	15 working days

FL	Yes. Operators must keep a current list of fees applicable to each type of design services.	Yes	No	No	Operator can choose to provide services requested. Operator needs to notify the designer if services will not be provided.	no	20 business days
GA	Free, but not all utilities provide info free of charge	Yes	No	Not for design- only large projects	Mark/Drawings/ Records/ Inspection of Records/ Description of utilities	No	10 working days
IN	No	Yes	No	No- but can request- provide meeting sheet	Maps/ temporary markers on ground/ inspection of records/ description of utilities	No	10 working days
KY	No	Yes	No	No- but can request- provide meeting sheet	Temporary markers on ground/ description of utilities/ inspection or records	No. Drawings need to include a scale, dimensions, and reference points.	10 working days

MI	Operators can charge fee for design	Yes	Yes	No	Maps/ Drawings-if operator does not have records, must mark utility	No	10 working days
MO	No	Yes	no	no	Mark or contact the requestor	no	5 working days
MS	No	yes	no	no	Mark/information/requestor can inspect or copy drawings and other records.	no	7 working days
MT	No	Yes	Yes for Projects requiring excavation in or adjacent to any public street, alley, or right-of-way dedicated to public use or utility easement		information and mark	no	5 business days
NC	No	yes	no	no	Mark/information/person to inspect drawings and other records	no	10 working days

OH	No	yes	yes	no	Mark/drawings	(i) They are drawn to scale and include locatable items. Locatable items may include poles, pedestals, back of curb, sidewalk, edge of pavement, centerline of ditch, property lines, and other similar items. (ii) They depict the location of the underground utility facilities.	10 working days
OR	Unknown	Yes	No	Yes	Maps/Records/M	Yes, for field marks.	10 business Days
PA	Free but SUE fees	Yes	Yes	Only Complex Projects	Description/ Mark	Yes	10 business days

SC	No	yes	no	no	Mark/information/person to inspect drawings and other records	no	15 working days
TN	In the event that the one-call service charges a fee to a member operator for design location notification, the utility operator may recover that fee from the requestor.	yes	no	no	Mark/information/person to inspect or copy drawings and other records	no	15 working days
VA	No	Yes	No	Yes, esp. for govt projects	Can request field locates, maps, surveys, installation records or other means	No	15 working days
WI	No	Yes	Yes	Only Large Projects	Mark on ground -but can request records as well.	No	10 days