1) **What is the effect of utilities on a construction project**

a) Contractors operate in a competitive bid arena.
   (a) We only have the opportunity to build if we successfully bid, therefore we do not have the ability to put in significant contingencies and get the project.
   (b) Contractors can prepare competitive bids from any set of documents, as long as all the available information is disclosed, particularly information relating to existing utilities on the project, and the impact of utility relocations to the means and methods of construction. The main concern for contractors is that all of the bidders on any given project are bidding with the same assumptions, the minimal need for contingencies, and with the same information and knowledge base as all of our competitors.

b) The potential for the largest unknown costs on a project, which may require bid contingencies, often relates to on-the-job utility issues:
   (a) Existing utilities that are not relocated in a manner that allows for construction activity to flow in a normal un-impeded process.
   (b) Encountering unknown utilities that impact the installation of underground appurtenances and surface features, and/or whose relocation serves to hinder the normal planned flow of work on the project.

c) Costs relating to utility conflicts on projects:
   i) **Unknown costs to the contractor related to utility conflicts include**:  
      (a) Lower production rates than planned (increased unit costs) for installation of underground appurtenances that are in direct conflict with or adjacent to existing or unknown utilities.
      (b) Increased costs due to working around known utilities that have not been relocated. Out of stage work due to working around utilities that have not been relocated.
      (c) Actual crew delays on the job waiting for decisions to be made regarding unknown utilities. (Do contractors send crews home, or absorb crew time waiting for decisions, or do we perform non-productive out of sequence work with that crew while waiting.)
      (d) Utility conflicts could create large overtime costs.
      (e) Work could be delayed into late fall and winter construction season, which are less productive and more costly.
      (f) With long delays and possible suspensions of work for utility relocations, work could be pushed into a new construction season, with labor rate, insurance rate, and material rate increases effectively increasing project costs. Any time a job is delayed into a second construction season, additional costs for re-mobilizing, traffic maintenance, job security, and job overhead occur. Supervision that
should be available for new projects is still tied up on the current job due to these delays.

(g) How much of a contingency for these unknown conditions can a contractor include in a bid, and still have a reasonable chance to be low bidder.

(i) If all conditions on the site are shown as they are, then contractors can bid projects without significant contingencies – as a result the project owner does not have to absorb the cost of un-needed contingencies. In the long run, better information regarding utilities in the design and pre-bid stage should lead to lower project costs.

ii) Costs to the Owner and the public for utility conflicts:
   (a) Projects are delayed or stopped; traffic congestion may be increased due to the construction staging for an extended period of time.
   (b) Business owners in or adjacent to construction zones area impacted by the traffic congestion and the inability of the public to reach their properties.
   (c) Project owners may pay for additional project inspection costs due to delays in resolving utility problems.
   (d) While public relations may not cost dollars – the sense of the public that things are not being constructed correctly impact the ability of the industry to obtain funding for future public works projects.

2. Contractors pre-bid preparation process
   a. With regard to pre-bid preparation, after a contractor determines to bid a project, in general the following process with regard to utilities is followed:

   i. How much appears to be known about utilities on the project?
      1. Are there notes or special provisions regarding utilities?
      2. Has SUE (subsurface utility engineering) been utilized and what level of detail is shown in the plans?
      3. Do the plans show existing utilities in sufficient detail to determine existing conditions? Many plans have so much detail for existing conditions and proposed construction on the same sheets that it is not possible to determine what the existing conditions at the site are per plan. Conversely, some plans have no details regarding existing utilities.
      4. Are utility contacts identified in the special provisions for those utilities that are identified within the project limits?
ii. What is the ROW status as it relates to utility relocation?
   1. Can staking, clearing, and known utility relocations be done with normal work flow versus skips and jumps that impair productivity.
   2. Does the ROW have to be staked and cleared prior to needed utility relocations? How will this effect staging?
   3. On urban jobs, is there room for utility relocations?

iii. What can be determined from a site visit with regard to existing utilities?
   1. Are utilities marked?
   2. Are conflicts obvious enough to determine the need for relocation?
   3. Have relocations been initiated by the utilities prior to the bid?
   4. Can the utility representative indicated in the bid documents be contacted for clarification of their proposed schedule for relocation work?

b. After a review of existing site conditions and the bidding documents, contractors have to determine if the risks associated with each project, justify the potential rewards.
   1. It costs money to prepare a bid – is there a chance of success with contingencies included in the pricing for utility conflicts?
   2. Will the job be worth the headaches at any price – is it better to pass on this job and not tender a proposal.

c. If it is determined to bid the project, evaluate the effect of utility conflicts on the bid and project costs.
   1. Determine the project flow, and how the project will have to be built – with planned utility relocations. Will utility relocation work disrupt the normal flow of construction? Identify the productivity costs associated with utility relocation disruptions.
   2. Are proposed underground pipe installations impacted by existing utilities? Will productivity be impaired by the location of existing underground conflicts?
   3. Assess risks related to existence of utilities and attempt to quantify costs associated with utilities to include in bid costs.
   4. Allocate overhead recovery costs and supervisory costs to the project and include in bid costs.
3. Contractor pre-construction and Construction Phase.
   a. During the pre-construction phase, contractors finalize the project construction schedule based on the information accumulated during the bid phase.
   b. Establish the work flow for the project to minimize disruptions and to make most efficient use of project time in order to complete the project.
   c. Schedule manpower, equipment, material delivery, subcontractors based on anticipated schedule and work flow.
   d. Conduct pre-construction conference, with attendance by contractors, Owner representatives, subcontractors, utilities, local agencies and others directly involved with the project.
      1. Review the work flow plan and schedule with involved parties.
      2. Establish expectations of all parities for work flow plan and schedule to be met.
      3. Identify and resolve any impacts to work flow plan identified at this pre-construction phase, particularly as they may affect utility conflicts.
   e. Begin construction phase of the project.
      1. Begin implementation of the schedule.
      2. Assess time and cost impacts to formulate the best solutions to changes in the schedule.
      3. The effect of utility conflicts and delays at this point of the project are critical if they have not been resolved at this point.

4. Effects of construction phase utility conflicts on contractors.
   a. Utility conflicts that have not been resolved at the time construction is set to start have serious schedule and cost impacts for contractors. What options do contractors currently have with respect to utility delays on projects:
      1. Suspend the project until all conflicts are resolved.
         However, many contractors have crews and equipment on the site with no other logical work assignments to go to, or no other locations to utilize the equipment crew, and project overhead.
            a. During summer construction periods, demand for skilled labor is high. A suspension of a project could cause a contractor to loose skilled personnel to other projects and employers.
            b. Suspension of work can force the project into less efficient fall-winter construction period, increasing costs. In the extreme case, work could be forced
into another construction season, with associated inflation costs.

c. Demobilization and remobilization of resources to the project (at additional expense) may be the result of a project suspension.

d. Projects that are booked and being suspended while waiting for utility relocations that occur outside of normal work expectations are not generating income necessary to recover corporate overhead.

2. Contractors can continue work by working less efficiently around utility conflicts, with lowered productivity and increased costs. Working out of phase (jumping around to different areas of the project) could be accomplished in order to maintain crews on the project, with additional costs associated with inefficient out-of-phase work. It could be that the only option for a contractor is to continue working incurring additional costs, and to pursue legal remedy to recover these costs.

b. How do contractors recover additional costs on the project related to utility conflicts?

1. Current INDOT specifications generally allow for an increase in time on a project but no compensation for increased cost of construction due to utility or other delays. Many local agency and consultant specifications follow this logic.

2. With no mechanism within the specifications for recovery of additional unforeseen costs associated with utility conflicts or delays, contractors may be forced to pursue legal alternates for cost recovery. This creates the scenario of putting contractors in adversarial positions with the project owners (customers) that they are working for.

3. It is the position of contractors in general that a specification change is required to provide equity and a method of recovery of extra project costs that could not have been anticipated or provided for based on the original bid documents and inspection of the site. This would minimize the possibility of being forced into an adversarial and litigious mode to recover unforeseen project costs due to utility conflicts and delays.
5. How can utility conflicts be mitigated or resolved?
   a. Industry members have recognized the seriousness of this issue and are currently engaged together as a Utility Relocation Task Force. Committee members include INDOT, Contractors, Consulting Engineers, Utility Companies, and FHWA.

   The problem statement established by this group states: Delays in completing highway improvement projects, due to utility relocation issues and conflicts, create safety risks and traffic congestion, and add inconvenience and expense to taxpayers, motorists, contractors, utilities, and adjacent property owners.

   The mission of this task force is: To minimize and eventually eliminate delays in completion of highway improvement projects involving utility relocations and minimize unnecessary expense for contractors, utilities, and public owners. Until this is attained, work with INDOT (and other public owners) to assure contractors are fairly compensated for any delays that do occur and are not the contractors fault.

   b. In the short term, projects continue to be bid and work initiated on projects that may incur delays due to utility conflicts and relocations. It is our belief that pro-active owner involvement is an important key to the resolution of utility conflicts and the coordination between all of the involved parties to resolve the problem.

      1. Steps taken during the design process, including the increased use of SUE, more communication between designers and utilities can maximize the potential for having all necessary information regarding existing utilities in the bid documents.

      2. Information regarding the intention of utilities with regard to their plans and schedules for relocations prior to the bid, allow all contractors to make the same assumptions when arriving at bid costs.

      3. Communication between all parties after award and prior to construction, particularly during the pre-construction phase is necessary to be able to establish schedules based on realistic expectations.

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March 25, 2003