INCENTIVES FOR UTILITY RELOCATIONS

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ABSTRACT

Utility relocations are a major cause of project delays during the construction of highway projects and a source of frustration to both highway and utility agencies. Results from a recently completed National Cooperative Highway Research Program (NCHRP) study and the Federal Highway Administration (FHWA) Every Day Counts initiative have shown that some State Departments of Transportation (DOTs) have attempted to address this problem by using financial incentives, primarily in the form of reimbursement or cash bonuses; other State DOTs have experimented with and/or Utility Agency/Others (UAOs) have suggested low-cost or no-cost incentives, such as avoiding utility relocations, acquiring right-of-way for utilities, and others; and all State DOTs have made efforts to coordinate, cooperate, and communicate with UAOs to some extent, and that is the best incentive of all. This paper will discuss some incentives that are being used or may possibly be used to facilitate utility relocations and thereby accelerate project delivery.

INTRODUCTION

In May 2008, the Transportation Research Board (TRB) Utilities Committee submitted a research needs statement (RNS) on utility initiatives to the American Association of State Highway and Transportation Officials (AASHTO) Highway Subcommittee on Right of Way and Utilities at the subcommittee’s annual conference. State Department of Transportation (DOT) utility managers discussed the RNS at that conference and agreed that there was a need to obtain information about the use of utility incentives on highway projects. The proposal was then submitted to the AASHTO Highway Subcommittee on Design where it was discussed and approved for National Cooperative Highway Research Program (NCHRP) funding in the 2010 research program. Consequently, a research project was initiated in 2010 with Cardno TBE and information was obtained from DOTs in the 50 states, the District of Columbia, and Puerto Rico, and from representative utility agency/owner (UAO) managers with relocation responsibilities. This paper summarizes incentives that were identified in April 2011 in the final report (1).

At just about the same time the NCHRP initiatives study was getting underway, the Federal Highway Administration (FHWA) embarked upon an initiative called Every Day Counts (EDC) (2). The EDC initiative was designed to identify and deploy innovation aimed at reducing the time it takes to deliver highway projects, enhance safety, and protect the environment. One aspect of EDC initiative involved a review of flexibilities in utility accommodation and relocation and focused in part on the use of incentives to accelerate utility relocations. Incentive information was obtained from FHWA division office engineers with utilities responsibilities, who more often than not turned to State DOT utility managers for help putting the information together.

A large number of possible incentives were suggested by DOT utility managers, FHWA division office engineers, and UAO representatives in the two above-mentioned studies. This paper will briefly discuss some of those incentives.
Overriding Incentive:
• Coordination, Cooperation, Communication (CCC)

Financial Incentives:
• Reimbursement
• Cash Bonuses

Low-Cost Incentives:
• Avoiding Utility Relocations
• Subsurface Utility Engineering (SUE)
• Right-of-Way Acquisition for Utilities
• Clearing, Grubbing, Staking, Grading
• Utility Corridors
• Lump Sum
• Unit Costs
• Lane Rental
• Simplified Utility Permitting and Documentation Requirements
• Utilities in Design-Build Projects
• Utility Work by Highway Contractors
• Utilities in Value Engineering.
• High-Level Memorandums of Understanding (MOU)
• Identification of Abandoned or Out-of-Service Utilities
• Designated Utility Coordinators
• Utility Coordination During Construction
• Combined Project Segments

COORDINATION, COOPERATION, AND COMMUNICATION (CCC)

CCC is the umbrella under which all other utility incentives exist. Not only incentives, but all utility-related activities work more efficiently if CCC is employed. It is a well-recognized fact that a DOT’s commitment to coordinate, cooperate, and communicate with utilities will result in more timely and efficient relocation activities and improved safety, quality, and timeliness in the utility relocation process. This may involve providing long-range construction schedules; encouraging and facilitating cooperative working relationships; holding regular meetings with UAOs in the planning and design phases; becoming knowledgeable of utility relocation processes and challenges; holding regular meetings with UAOs and contractors during construction; encouraging UAOs to make and keep commitments on work plans; and sharing best practices.

FINANCIAL INCENTIVES

Reimbursement – This incentive, if desired and if state laws allow, will allow DOTs to reimburse UAOs and be reimbursed in turn by the FHWA for the actual costs of relocating utility facilities from public property. The Tennessee DOT currently provides reimbursement as an incentive for on-time utility relocations and appears to be satisfied with the results. The West Virginia DOT tried using 100% reimbursement as an incentive for timely utility relocations but has since
discontinued doing so, primarily because the incentive wasn’t providing the on-time completions desired. The Kentucky, Maryland and Texas DOTs have used 100% reimbursement for specific projects with some apparent success. A lesson learned has been that if utilities are going to be reimbursed as an incentive for on-time utility relocations, they must complete agreed upon work in a timely manner or else forfeit the reimbursement.

Cash Bonuses – This incentive, if desired and if state laws allow, will allow DOTs to pay cash bonuses to UAOs for timely relocations of their facilities. Federal laws and regulations, however, might prohibit participation in the payment of cash bonus incentives because they would be over and above actual utility relocation costs. The Alabama, Arizona, Massachusetts, Missouri, Montana, Tennessee, and Utah DOTs have used this incentive for early completion of individual projects in an effort to expedite utility relocations and thereby accelerate project delivery. Results of using this incentive on specific projects have generally been considered to be good.

LOW-COST / NO-COST INCENTIVES

Many State DOTs are already providing low-cost or no-cost incentives to UAOs. This is based upon the concept that everything the DOT can feasibly do to help UAOs do their work will facilitate utility relocations and thereby accelerate project delivery. Some of these low-cost incentives are as follows:

Avoiding Utility Relocations – This incentive would eliminate the need for UAOs to relocate many utility facilities. Even when utilities are relocated on or before a scheduled time and there are no unexpected delays, the work is often very costly and time consuming. It is therefore in both the DOTs and UAOs best interests if there is no need to relocate utilities, at least major utilities, in the first place. DOT designers and design consultants can significantly impact project delivery by seriously considering utilities during the design of highway projects. This, of course, can only be done if they are provided with reliable utility information prior to beginning their work.

Subsurface Utility Engineering (SUE) – This incentive would involve the use of SUE early in the development of projects, particularly the collection and depiction of existing utilities data (overhead and subsurface). The best practice for the collection and depiction of existing utility data is in accordance with the American Society of Civil Engineers’ CI/ASCE Standard 38-02, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data (3). This aspect of the SUE practice provides many cost-saving and time-saving benefits, such as avoiding unnecessary utility relocations, eliminating delays to projects, and reducing claims from contractors. One roadblock to using SUE from a design standpoint is that DOT design and construction budgets are typically separate and that design managers may not want to invest portions of their budgets for items such as SUE where the savings in time and money will be achieved during construction. Even so, having complete utility information, engineering authorization, and conflict data during project development will enable DOTs to mitigate conflicts and adjust project letting dates, if necessary, on those projects that involve relocating complex and time-consuming utility systems. This will effectively circumvent having utility issues during highway construction.
Right-of-Way Acquisition for Utilities – This initiative will allow DOTs to acquire right-of-way for utilities at the same time it is being acquired for highway purposes, and will greatly benefit DOTs, UAOs, and most of all, affected property owners. Thus, whenever a DOT intends to permit utilities to use and occupy public highway right-of-way, such potential use should be a consideration in determining the extent and adequacy of the right-of-way needed for the project. Failure to recognize the impact of such use, as well as other uses on private property located adjacent to the public highway right-of-way may affect the safe and efficient operations of the highway and may result in the acquisition of right-of-way that is inadequate to meet the needs of the highway and the traveling public. One obstacle that must be overcome in order to acquire right-of-way for utilities is that most state laws do not allow DOTs to purchase or condemn any right-of-way other than what is needed for highway purposes and utilities are not defined or interpreted to be a highway purpose.

Utility Corridors – This initiative will allow DOTs to establish longitudinal strips of highway right-of-way exclusively for the location of utility facilities. When right-of-way is acquired for utilities, as discussed above, specific locations near the right-of-way line may be assigned for each utility. Requirements for all UAOs occupying public right-of-way to be located in utility corridors may further require that buried facilities share a joint trench or utilize pipe or box culvert structures constructed solely for utility purposes. The use of utility corridors will simplify and expedite the utility relocation process. If UAOs know that there is an area prepared for their use, designs are simpler to create and implement. Utility corridors can be especially useful where existing utility congestion or severe limitations on available right-of-way exist.

Clearing, Grubbing, Staking, Grading -- This incentive will allow UAOs to begin relocating their facilities before construction begins and will also send a message to the UAOs that the project is really going to proceed. It may involve removing trees, roots, and other obstructions from the right-of-way; environmental and archeological clearance on all new right-of-way; and staking of new right-of-way limits on projects where utility relocations are to be performed. In some cases minor grading work may be included. If for some reason the project gets cancelled or suspended for any period of time, the DOTs should be responsible for maintaining the right-of-way. Implementing this incentive will benefit the DOTs by expediting project completion times and will benefit the UAOs by allowing them to relocate in advance of construction. The costs to the DOTs can be justified as a public interest undertaking due to project dollars and time saved.

Lump Sum Agreements – This incentive will eliminate much of the paperwork and strict accounting commonly required of UAOs on highway projects. When proposed utility relocation work on a project can be clearly defined, FHWA and most DOT policies allow for fixed amount (lump sum) final payments to be made to UAOs based upon an estimate of relocation costs prior to construction. A principal benefit of using this method is that it can reduce administrative and record-keeping costs associated with documenting payment for completed work. The lump sum payment method should only be used where the utility relocation can be clearly and concisely defined. The cost estimate in support of the lump sum agreement must be accurate, comprehensive, verifiable and in sufficient detail to give a clear picture of the work involved and the cost of the individual items. Whenever the lump sum payment method is used, the DOT must verify that the eligible work has been satisfactorily completed in accordance with the approved agreement, plans, and specifications before reimbursement can be approved.
Unit Costs – This incentive will allow DOTs and UAOs to work together to develop unit costs to estimate utility relocation costs and to reimburse expenditures. Unit costs have been used by the Montana DOT for more than ten years. They were not necessarily developed to be incentives but have nonetheless accelerated utility relocation work in Montana. DOT utility agents worked closely with major UAOs (telephone, electric, gas) to develop standard construction units and associated cost components, such as direct labor, labor overheads, indirect labor, vehicle and equipment rates, material costs, material overhead costs and retirement. The benefits have included the following: (a) audits of each project's actual costs are not required (periodic reviews of the accuracy of the individual utility unit costs will suffice); (b) cost accounting, with extensive documentation for time and materials used on a project, is not required; (c) detailed cost estimate preparation and subsequent DOT review is significantly simplified; (d) UAO contractors and consultant engineers do not need to be reviewed or pre-approved by the DOT; (e) DOT participation in utility cost overruns is eliminated, except for overruns caused by increased numbers of units; and (f) prompt billing is facilitated and projects are closed in a timely manner. Unit costs are developed periodically and supported annually by a maintained database of relocation expenses.

Lane Rental -- The lane rental technique may be viewed as more of a disincentive than an incentive because rental fees for contractor’s lane closures are typically assessed for the time a roadway lane is occupied or obstructed. Looking at lane rental as a utility incentive, UAOs might agree with DOTs on the number of days a lane will need to be closed during utility relocation work and if the UAOs then use fewer lane rental days than proposed they might be given an incentive bonus.

Simplified Utility Permitting and Documentation Requirements – This incentive would facilitate the development of a simplified utility permitting process, preferably electronic, that would expedite the utility relocation process. Most DOTs require a permit prior to the relocation of utilities, even when such relocations are necessitated by highway construction. In theory, simplified permitting and documentation requirements would require all stakeholders to work together and agree on a system that would utilize simple state-of-the-art tools for preparing and submitting the required documentation. The process and document requirements should be standardized within each state so there is consistency throughout the state. This would greatly improve relationships between UAOs and DOTs by virtue of clarity of expectations in permitting and document preparation.

Utilities in Design-Build Projects – This initiative would give UAOs the ability to work more closely with designers and constructors. The design-build approach has in many cases proven to be a successful method of accelerating project completion by allowing design, roadway and bridge construction, right-of-way, utilities, and other activities to proceed at the same time. Since both design and construction are performed under one contract, construction can begin before all design details are finalized. In the same manner, utility relocations can begin at any time the contractor desires, but the contractor is responsible for any utility-related construction delays that may occur.
Utility Work by Highway Contractors – This incentive involves a contractual agreement between a UAO and a DOT that allows utility facilities to be relocated as part of a construction project. This arrangement will take the relocation burden away from the utility owner and allow the highway contractor to assume responsibility for coordinating and performing the utility relocation work. It will also afford the roadway contractor an opportunity to work directly with the utility contractor to find creative solutions that will expedite the utility relocations and improve coordination between utility work and the road project. The utility work by highway contractor process often results in significant reductions in the number of construction conflicts, thereby reducing claims, time delays, supplemental agreements, service interruptions and general inconvenience to the public.

Utilities in Value Engineering – This initiative involves the inclusion of utilities in value engineering analyses. Value engineering is a systematic process for a multidiscipline team of experts to review and analyze a project during the concept and design phases in order to provide recommendations for providing the needed functions safely, reliably, efficiently, and at the lowest overall cost. UAO’s and even utility topic areas are often not included in value engineering analyses but should be. This will afford many opportunities for the VE team to avoid utilities and/or expedite required utility work and thereby reduce a project’s cost and time.

Multi-Level Memorandums of Understanding (MOU) – This initiative would facilitate the CCC process and optimize the relationship between beginning at the highest possible organizational levels. In September 2008, an FHWA/AASHTO International Scanning Study Team visited Australia and found that two states (Queensland and New South Wales) had entered into multi-level memorandums of understanding (MOU) with major UAOs (4). The basic Australian MOU structure included (a) a high-level MOU developed by upper management personnel that set forth general principles and the intent of both parties to work cooperatively; (b) several mid-level MOUs developed by middle-management personnel defining roles and responsibilities, as well as standards, specifications and general procedures for the resolution of high priority conflict situations; and (c) project agreements detailing contract-specific provisions that the higher-level MOUs did not address. The multi-level concept has generally not been used in the United States but many states do have partnering agreements (e.g., master agreements) with UAOs. However, the Australian MOUs are generally more elaborate and stringent than the partnering agreements in the United States and in particular are initiated at the highest levels of the highway and utility organizations. Written and signed MOUs, although not legally binding, will nonetheless tend to alleviate problems frequently encountered at the lower levels that lead to conflicts of interest and project delays.

Identification of Abandoned or Out-of-Service Utilities – This initiative to identify abandoned or out-of-service utilities would benefit utility relocation efforts by eliminating misinformation regarding utilities in highway plans; reducing utility coordination issues and time; increasing space for highway project features or utilities; reducing adversarial relationships between UAOs and highway contractors; and reducing highway project construction completion times and costs. The process for implementing this suggestion involves the collection and depiction of existing subsurface utility data in accordance with CI/ASCE Standard 38-02. During this collection of information, any utilities that are found to be abandoned and scheduled for removal would be identified as such and included in the highway contract documents and on the plans for removal.
by the highway contractor. Out-of-service utilities to be left in place should also be identified as such in the highway contract documents.

**Utility Coordination During Construction** – This initiative would enhance CCC between DOTs, UAOs, and contractors during the construction of highways. Since DOTs are project owners, they have traditionally taken the lead in this regard and have used their own utility coordinators during the preconstruction phase of projects to expedite the work. Now, increasing numbers of projects, increased difficulty relocating and/or adjusting utilities prior to construction, and insufficient numbers of employees have made it necessary for DOTs to hire engineering consultants to help with the preconstruction work. Utility coordination on construction projects has been almost non-existent but is becoming more necessary. Thus, on projects where the highway contractor is responsible for utility relocations (generally on design-build projects) or where there is extensive utility relocation work occurring during construction, the DOT may require the contractor to provide a full-time utility coordinator. Consequently, it has become recognized that utility coordinators are needed both during the preconstruction and construction stages of nearly all major highway projects.

**Combined Utility Segments** – This incentive would alleviate a troublesome practice for UAOs that often occurs when large projects are broken up into smaller projects. There are good reasons for DOTs to do this but the practice creates many problems for the UAOs. Implementation of single agreements with UAOs to relocate facilities on adjacent projects, rather than separate agreements for each project, would eliminate the need for multiple engineering, design, and relocation resources and would greatly expedite the work.

**CONCLUSIONS**

When utility relocations are necessitated by highway construction there are many things that DOTs might be able to do to help UAOs. Everything they can do to help should decrease the time and expense and accelerate project delivery.

The Tennessee DOT currently provides 100% reimbursement as an incentive for on-time utility relocations and appears to be satisfied with the results. Conversely, the West Virginia DOT tried using it as an incentive but discontinued doing so because the incentive wasn’t providing the on-time completions desired. The Kentucky, Maryland and Texas DOTs have used 100% reimbursement for specific projects with some apparent success.

The Alabama, Arizona, Massachusetts, Missouri, Montana, Tennessee, and Utah DOTs have provided cash bonuses to UAOs for early completion of individual projects in an effort to expedite utility relocations. Results have varied. Some DOTs believed it helped accelerate utility relocations; others didn’t. State laws prohibit some DOTs from paying cash bonuses to utilities. Federal laws and regulations appear to prohibit participation in cash payments to utilities because such payments are over and above actual utility relocation costs.

Many low-cost and no-cost incentives were suggested in the NCHRP 20-07(269) incentives study and the FHWA Every Day Counts initiative and have been summarized in this paper. Unfortunately, many of the incentives contained in those reports have not been tried on highway
projects but were suggested by UAO representatives because they thought that if DOTs would provide them that it might help them to relocate utilities faster. Further, the low cost and no-cost incentives that have been tried (e.g., clearing and grubbing, acquisition of right-of-way for utilities, avoiding utility relocations, etc.) have not been formally evaluated but are generally thought to have accelerated utility work. Thus, the research work done to date on utility-related incentives has only identified incentives for DOTs to try and further research will be needed to quantify the benefits.

It is therefore suggested that State DOT utility managers and their FHWA counterparts consider the initiatives suggested in this paper and try some of them on transportation projects. They may not be applicable in all states; however, they may lead those considering them to come up with some initiatives of their own that will be beneficial.

REFERENCES